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Subscription Rates—Present special rate of two years for $1.00. Single copy, 10 cents. Special Canadian subscription, two years for $1.75. Foreign subscription, $1.50 for two years. No yearly subscription. Discontinuance—Subscription stopped on expiration. No subscriber will be run into debt by us for this journal. Change of Address—Give your old address as well as the new and write the name to which the journal has heretofore been addressed. Remittance—Should be sent by postoffice money order, bank draft, express money order or check. Contributions to Gleanings columns solicited; stamps should be enclosed to insure return to author of manuscript if not printed. Advertising Rates—Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. Advertisers' Liability—The publishers use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.
Entered as second class mail matter at the Postoffice at Medina, O. Published monthly.

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The A. I. Root Company, Publishers, Medina, Ohio.

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Honey Prospects and Markets

U. S. Government Report of January 15 Summarized.
(Information from Producing Areas for First half of January.)

California Points: Southern California—The weather has been warmer and mostly clear. Rain has fallen on several days, however, and the ground is now well soaked with moisture. Deep-rooted nectar-secreting plants have benefitted greatly, particularly the black or button sage, which is making fine growth and may bloom early. Manzanita is blooming well in the lower altitudes and is reported promising in higher altitudes. Mountain mahogany has been killed in some sections by frost, and in lowlands some sumac has been affected by the cold. Orange groves are in prime condition, rape, eucalyptus, white mustard and wild gooseberries are in bloom, and brood-rearing has started. Bees with sufficient stores are in normal condition, but where stores are scanty many colonies are weak. The abundant rainfall so far this season leads all factors to expect a large honey flow during the coming season. Because of this fact beekeepers are showing a greater tendency to move stocks on hand and the market has taken on a weaker tone. Orange honey is especially weak, partly because the low prices for Intermountain and Hawaiian honeys have reduced the demand for orange honey and partly because stocks are relatively large. Very little European demand is in evidence, and eastern demand is principally for the darker honeys, but local buyers have been more active recently. Sales by beekeepers reported as follows, per lb., ton lots or more, orange, white to extra white, 5¾-7c; small lots up to 7½c; buckwheat-sage extra light amber, 4¼-4½c; light amber, 4-4½c; car amber, 3¼c: white sage, 5½-6½c; light amber alfalfa, car lots, 4.3-4.6c; light amber mixed flowers, 4c; white sage comb, $5.50 per case. Beeswax is in light supply with very little demand at 10-12c per lb. f. o. b., few lots higher. Central California—Rainfall has continued in volume and generous addditions were made to the mountain snow pack, until in some parts of the Sierras the largest snow pack of recent years has been accumulated. The stream flow has not been increased noticeably, as most of the rainfall was absorbed by the ground. Spring grasses have made their appearance, and although cold weather has retarded honey plants the rainfall should bring on an early flow. Orange trees were damaged somewhat by the frost. Bees have been generally confined to the hives by low temperatures, but in sheltered locations some brood is already being raised. Sales reported of large lots, per lb., light amber alfalfa, 3½-4c; white orange, 6¾c; white cotton, 4⅛c; alfalfa-cotton, extra light amber, 3½-4c; some being held at 5c, light amber, 3¼c; extra light amber mixed flowers, 3½-4c. Beeswax is being reported sold at 10-13c per lb. Northern California—Recent heavy rains have not only brought rainfall above normal but have raised streams to the flood stage, so that beekeepers in lower river areas are moving bees to higher ground. The heavy rains and warmer weather have been favorable to thistle and other plants. Eucalyptus and willow are in bloom and manzanita is blossoming at the higher elevations. The bud set of manzanita indicates an exceptionally heavy blossoming, but most of it is apt to be too early for bees to take full advantage of the nectar. A fairly good bloom from almond and other orchard trees is indicated. Sales by beekeepers reported as follows, per lb.: Star thistle, white, 5-6c; extra light amber, 4-5c; light amber alfalfa or mixed star thistle and alfalfa, 3½-4c. Beeswax, average, 10-12c per lb., light-colored slightly higher.

Pacific Northwest: West of the Cascades. The weather has been mild but rain and snow have continued heavy and the ground has been absorbing moisture. Bees should winter well. Moisture conditions are excellent for early vegetation, and a heavy nectar flow in 1932 is looked for. Many beekeepers are already sold out of last year's honey. East of the Cascades—The weather has been sufficiently mild so that snow cover has decreased, though towards the end some new snowfall was reported. Many districts are said to have more moisture in the ground and in storage than for many years, indicating good alfalfa and sweet clover growth. Alfalfa-sweet clover extracted sold at 5½-5¾c per lb.

Intermountain Region—Stocks of honey, especially those in the hands of large beekeepers, appear to be sharply reduced, and no reporter seemed concerned over the prospect of a carryover into the new crop. Supplies of comb honey are especially light. Demand for small lots has been fair. No carlot sales of white sweet clover and alfalfa reported, but lots are said to be available at 4½-4¾c, and extra white at 4¾-5c, with some beekeepers holding for higher prices; few sales ton lots, 6c; 60s, 7-8c per lb.; small pails, 7-10c per lb.; small pails amber extracted reported sold at 7c per lb.

Arizona.—The weather has been colder than usual. More rain has fallen, increasing prospects for a winter flow from bladder pod, which has not yielded for several years, owing to drouth. Carlots light amber to extra light amber alfalfa in the Phoenix district reported sold at $5.00-5.25 per case of 120 pounds; ton lots light amber to extra light amber mesquite and catsclaw, 4-4¼c per lb.

Plains Area—Red River Valley of Minnesota and North Dakota. The weather was very mild just after Christmas and bees wintered outside had opportunities for short flights. Recently it has been much colder and some snow has fallen. Cellar-wintering has been very satisfactory to date, with cellar temperatures steady, and unless colonies have a shortage of stores they should winter in excellent condition. The present outlook is better than it was a year ago. One carlot sale white sweet clover reported at 5¼c per lb., ton lots and less, 5-5½c, few small lots 6c; small pails, 9-12c per lb. Some comb honey reported sold at $2.75 per case. Light-colored beeswax, 20c per lb. Iowa—Following the long period of mild, rainy weather it has become a little colder and considerable snow has fallen. Bees are wintering well and are quiet in cellars. Until recently bees outside had frequent flights. Prices are steady, but sales over the holiday period slowed up somewhat. Kansas and Nebraska—Bees are wintering satisfactorily where they had plenty of stores. Snow has fallen recently in the eastern portion of these states, which added to previous rain and snowfall gives an abundant supply of soil moisture. Honey plants are in exceptionally fine shape as a result of the heavy precipitation. Demand for honey has been rather slow and the market has been dull. Occasional sales reported of white extracted in 60s and larger, 6-7½c per lb.; small pails, 8½-12c per lb. Comb honey has brought $2.50-3.50 per case.

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Southwestern States: South central and southwestern Texas—The abundant rains continue to make beekeepers feel that there will be a good honey flow from spring plants. Bees are generally in good condition, though occasional reports of short supplies are heard. A few large beekeepers still have quite a stock of honey, but most appear to be cleaning up fairly well in spite of the light demand. Few sales reported of amber extracted in 60-lb. cans at 3½c per lb., with smaller lots higher. Northeast Texas—Heavy rains continue, but bees have been flying whenever the sun shines. Horsemint and clover reported in fine condition.

Summary.—Abnormally warm temperature has again prevailed over the eastern and central portions of the country with wintry conditions experienced principally in portions of the West. Rainfall has been heavy in the Northwest and along the Atlantic Seaboard, extending over much of the southeast, with heavy snowfall in parts of the upper Mississippi and lower Missouri valleys. Honey plants are in much better than normal condition for this time of the year because of the mild weather and the generous precipitation. Bees have had occasional opportunities for flight in most sections except portions of the mountain area, and are wintering well except that some bees in cellars in the East and North are becoming restless.

Demand for honey has slackened since the holidays. Stocks, however, have lessened so rapidly for the season to date that in no section do the beekeepers feel concerned that the carryover will be important. Little demand re-

(Continued on page 121.)

Monthly Report of Honey Producers

Early in January we sent the following questions to honey producers: 1. What per cent of honey produced in your locality has left the hands of the producer? Give answer in per cent. 2. At what price has honey been sold, or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per lb? (b) comb honey, fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No.1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. What is the condition of the honey plants for next season in your locality as compared with the average? Give answer in per cent. 7. What is the condition of the colonies at this time as compared with normal, considering the number and age of bees and the supply of stores? Give answer in per cent. The answers received are tabulated as follows:

State. Name.	Pct. sold.	Carload lots. Ex.	Carload lots. Comb.	To grocers. Ext.	To grocers. Comb.	Retail. Ext.	Retail. Comb.	Move-ment.	Cond. honey plants.	Con. colo.
Ala. (J. M. Cutts)	..	..	..	$.45	$3.60	$.65	$.20	Slow	100	100
Ark. (Jas. Johnson)	..	..	..	.75	3.50	1.00	.20	Slow	75	80
B. C. (A. W. Finlay)	15	.10½	..	.75	..	1.00	..	Rapid	100	90
Calif. (L. L. Andrews)	..	..	..	..	..	..	..	Slow	90	85
Calif. (F. J. Edwards)	75	..	..	.45	3.80	.60	.22	Slow	100	100
Colo. (O. E. Adcock)	90	..	..	.42½	..	.55	.18	Slow	75	75
Conn. (Allen Latham)	55	..	..	.80	4.75	1.00	.27	Fair	100	100
Conn. (A. W. Yates)	90	.06	3.25	.70	5.00	1.00	.30	Slow	100	..
Fla. (C. C. Cook)	..	..	..	.45	..	.55	..	Slow	100	100
Fla. (H. Hewitt)	85	..	..	.50	..	.65	..	Fair	80	100
Ga. J. J. Wilder)	35	.06	..	.50	..	.65	..	Slow	70	70
Ind. (Jay Smith)	25	..	..	.60	3.00	.75	.15	Slow	100	125
Ind. (T. C. Johnson)	50	..	..	.55	3.00	.75	.20	Slow	100	100
Ind. (E. S. Miller)	35	..	..	.60	3.80	.80	.20	Slow	100	100
Iowa. (W. S. Pangburn)	90	..	..	.50	3.25	.57½	.18	Slow	60	100
Iowa. (E. G. Brown)	80	.05	..	.60	..	.75	.20	Fair	100	100
Iowa. (F. Coverdale)	75	.06	..	.45	..	.50	.20	Fair	75	100
Kans. (J. A. Nininger)	..	..	..	.55	3.75	.65	.20	Fair	100	100
Kans. (J. F. Garner)	75	..	3.50	.40	3.87½	.55	.22	Slow	100	100
La. (E. C. Davis)	75	.05	..	.40	..	.60	..	Fair	100	100
Me. (O. B. Griffin)	95	..	..	..	6.50	..	.35	Slow	95	90
Md. (S. G. Crocker)	70	..	..	.75	5.00	1.00	.30	Slow	100	100
Mich. (I. D. Bartlett)	85	..	..	.45	3.75	.55	.20	Fair	90	90
Mich. (E. D. Townsend)	15	.07½	..	..	..	..	..	Slow	..	..
Minn. (Francis Jager)	..	..	..	.60	..	.75	.25	Good	80	100
Minn. (F. W. Ray)	..	.06	3.25	.50	3.75	.60	.20	Slow	90	100
Minn. (B. L. Morehouse)	40	.06½	..	.50	..	.65	..	Fair	65	100
Nebr. (J. H. Wagner)	40	.05½	..	.50	3.60	.60	.20	Slow	90	90
N. Y. (Geo. B. Howe)	..	..	..	.50	3.50	.70	.20	Fair	..	100
N. Y. (F. W. Lesser)	80	.06	3.00	.40	3.40	.50	.18	Slow	100	100
N. C. (C. S. Baumgarner)	100	..	..	.75	..	1.00	.25	Slow	100	100
N. D. (Chas. Engle)	90	.05½	..	.45	..	.50	.20	Slow	75	90
Ohio. (F. Leininger)	95	.06	..	..	..	.80	.20	Fair	100	100
Ohio. (J. F. Moore)	..	.07	..	..	..	.75	.20	Fair	100	100
Ohio. (R. D. Hiatt)	50	..	..	.60	3.50	.80	.20	Slow	100	95
Okla. (Jos. Heueisen)	90	..	..	.75	2.25	1.00	.25	Fair	70	60
Okla. (C. F. Stiles)	83	..	..	.60	4.00	.75	.21	Fair	80	80
Ore. (H. A. Scullen)	30	..	..	.42	..	.55	..	Slow	100	100
Pa. (H. Beaver)	93	.05	..	.50	..	.60	..	Fair	90	100
Pa. (D. C. Gilham)	70	..	..	.80	4.50	1.10	.28	Fair	100	90
S. C. (E. S. Prevost)	90	..	..	.55	..	.75	..	Slow	100	80
Tenn. (J. M. Buchanan)	95	..	..	..	..	1.00	.25	Slow	75	90
Texas. (T. A. Bowden)	80	..	..	.55	..	.65	..	Slow	80	75
Texas. (J. N. Mayes)	80	.05	..	.25	..	.40	..	Slow	90	90
Texas. (H. B. Parks)	40	.05	..	.45	..	.65	..	Slow	100	100
Utah. (M. A. Gill)	85	..	..	.40	3.00	.50	.18	Fair	80	80
Vt. (Phillip Crane)	..	..	3.25	.70	4.25	.90	.27	Slow	100	95
Wash. (G. W. B. Saxton)	60	..	..	.42	..	.45	..	Fair	100	100
Wis. (N. E. France)	..	..	..	..	..	.75	.20	Fair	95	90
Wyo. (Earl C. Reed)	80	..	..	.40	3.60	.50	.20	Fair	50	90

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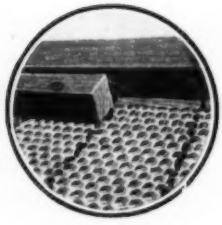

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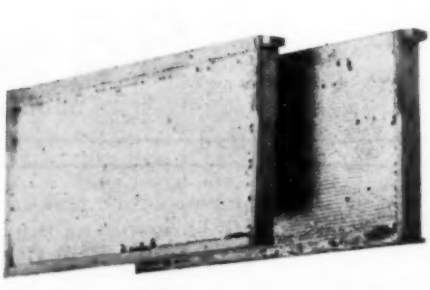

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FEBRUARY, 1932

Topsy-Turvy Weather

Many beekeepers are wondering what will be the effect of the unusual mildness of the winter on the bees and the honey plants. The entire northeastern portion of the United States and much of eastern Canada has experienced thus far one of the warmest winters on record. Dandelions in bloom in January in the latitude of northern Ohio and bees gathering pollen freely in the latitude of southern Ohio cause even the oldest inhabitant to take notice. While the weather was balmy in the East, it has been severe in portions of the West. Sunny California has been having much cold, wet weather with a heavy supply of snow in the mountains—highly pleasing to beekeepers but hardly so to winter tourists. Portions of the Intermountain Region are blessed with an abundance of snow in the mountains to supply water for irrigation. So far as moisture is concerned, the prospects for a good crop of honey in the West are good but reports indicate that the bees are not in best condition in many localities. In some regions beekeepers report that the colonies are consuming large amounts of honey and that it will be necessary to feed to prevent starvation, but north of parallel 40 the bees have been remarkably quiet and have not consumed stores excessively as a rule.

The Package-Bee Industry

The enormous growth of the package-bee industry within recent years is an outstanding feature in the beekeeping industry in this country. Much of this growth is due to the great improvements in the methods of packing and shipping, together with the highly commendable co-operation of the express companies in the proper care of the bees in transit. One does not have to go back many years in memory to the time when heavy losses of bees en route were quite common, and northern beekeepers hesitated to order packages on that account. Today such losses have become almost negligible. At the same time these great improvements were being made, prices were reduced year after year until they are now so low that northern beekeepers can not afford to carry any idle equipment into the season. Formerly, winter losses were made up during the summer, too late to be profitable the first season, and colonies that were weak in the spring were nursed along and built up for winter in the hope that they would be profitable the following year. Today, winter losses can be made up with package bees, and weak colonies can be built up by adding a pound or two of bees from packages, thus making them producers the same season.

Who Should Rear Queens?

Improvements in beekeeping practice make it more and more imperative to have on hand a good supply of young queens during the season and especially during the swarming period. Many large-scale honey producers have been compelled to master the art of queen rearing in order to carry out their systems of management. Likewise, many amateur beekeepers who are busy at other work during the day find it convenient to rear at least a few queens to bring about short cuts in management by which they are able to operate their colonies successfully by giving attention only occasionally. Even beginners get quite a thrill out of rearing a queen or two from a select mother in order to improve their stock. It is, therefore, with considerable pleasure that we present in this issue the first of another series of articles on the subject of queen rearing.

Government Honey Poster and Color Chart

James I. Hambleton, Senior Apiculturist, Bureau of Entomology, Washington, D. C., reports that the supply of colored honey posters, "It's All Good Honey," published by the government to help beekeepers sell their honey, is almost exhausted, there being but 1000 copies left. He reports further that there are on hand about 4000 copies of the color chart used in connection with the United States standard grades to illustrate the color requirements

of comb honey. Copies of either the colored honey poster or the color chart for grading comb honey can be had while the supply lasts from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents each, or when 50 copies or more are sent to one address, the price is 10c each. In ordering these, either cash or money order should be sent direct to the Superintendent of Documents, since stamps can not be accepted by the government.

Scarified Sweet Clover Seed

Since most of the sweet clover seed sold by seedsmen is scarified, in order to bring about a much higher percentage of germination, there is great need of a better understanding on the part of farmers in regard to the danger of the young plants being killed soon after germination by freezing weather. Scarified seed germinates so quickly that, if sown too early, there is great danger of almost a total loss of the young plants if germination takes place during a spell of warm weather followed by hard freezing weather. For this reason, scarified seed should not be sown during the winter as unhulled or unscarified seed is sown. Many failures to secure a stand of sweet clover have been brought about in this way. Those who can not obtain the unscarified seed should postpone seeding until danger of freezing has passed. As pointed out by E. R. Root on page 93 in this issue, sweet clover seed-in-the-hull or hulled but unscarified seed can be sown this month, but in the North, it would not be safe to sow scarified sweet clover seed until later.

Secretary Hyde Makes Further Concession to Corn Sugar Manufacturers

In "New and Revised Definitions and Standards for Food Products," issued by the United States Department of Agriculture, December, 1931, Secretary Hyde makes further concession to the manufacturers of corn sugar by establishing standards for the administration of the Pure Food Law, making it unnecessary to declare corn sugar in ginger ale, sarsaparilla, root beer, birch beer, and cream soda water. While these concessions appear quite innocent, and while they will probably not make much difference one way or the other in the manufacture of the products mentioned, the whole disgraceful affair is directly opposed to the spirit of the Pure Food Law, which intended that consumers should be informed regarding the contents of various food and drug products, and it opens the door wider for further special privileges for corn sugar. It is further indication that the ultimate purpose of the corn-sugar manufacturers is the complete emasculation of the Pure Food Law so far as their products are concerned.

Since Secretary Hyde is the first Secretary of Agriculture who has made concessions to the corn-sugar people, evidently they intend to use him to the fullest extent while the going is good. During the 25 years since the enactment of the Pure Food Law, the corn-sugar people have hounded the various secretaries of agriculture in their effort to obtain rulings that would legalize adulteration of food products with corn sugar and corn syrup. Each secretary in turn stood firm against their demands for special privileges until Secretary Hyde issued his disgraceful ruling legalizing the adulteration of various food products (excepting honey) with corn sugar when shipped in interstate commerce. Repeatedly Congress has refused to grant the special privileges demanded by the manufacturers of corn sugar. No wonder the corn-sugar people are making hay while the sun shines!

Difference in Viewpoint of Large and Small Producer

It has been suggested that publishers of bee journals should put out at least two editions, one for commercial honey producers and the other for amateurs. Some have even suggested a third edition devoted to the scientific phases of beekeeping. Aside from the fact that dividing a bee journal into two or three sub-divisions would result in none of them being supported to a degree sufficient to pay the cost of publication, there are numerous objections to such segregation of beekeeping topics. So many new things of interest to all classes of beekeepers are contantly being worked out that the dividing line would be difficult to draw so far as the interest of beekeepers having various holdings is concerned.

Large commercial honey producers become so engrossed in working out the machinery and methods needed in getting things done in a large way that they are inclined to drift away from an intensive

study of the bees themselves, which is the chief interest of amateurs. They do not have time to make careful observation as the amateur does. Most of the larger commercial producers, therefore, find much of interest in the things that appeal to the amateur and the beginner in beekeeping. Ofter these large commercial men learn much of value to them in their work from the writings of amateurs. Much of the information regarding the behavior of bees was accumulated during the period before the days of large-scale commercial honey production when most beekeepers were amateurs and had time to make careful observations.

On the other hand, amateurs and even beginners are greatly interested in the methods employed in large-scale honey production, for they learn many things from a study of the methods employed in producing honey when efficiency is of prime consideration. Thus, the enthusiastic amateur in his eagerness for information is often just as deeply interested in articles that might appear suitable only to commercial honey producers, and commercial honey producers often read with equal eagerness articles that would appear to be especially addressed to the amateur class. Both the amateur and the commercial beekeeper want the scientific contributions, not only on account of the possible application in practice, but also for the satisfaction that comes with an increase in one's store of information.

Honey Mixed With Corn Syrup

Manufacturers of corn syrup have been circularizing extensive honey producers with literature advising them to mix corn syrup with honey to supply their market. The implication is, of course, that the beekeeper will correctly label the mixture, telling what percentage of each ingredient is present. These circular letters would have the beekeeper believe that his honey would be improved by the addition of corn syrup, and that the presence of the corn syrup would help sell the honey—a most absurd argument. Thus far, beekeepers have been wise enough to avoid this trap, but we are informed on page 101 in this issue that the experiment is now being tried by a beekeeper.

While such a mixture when properly labeled can legally be sold without interference with the Federal Pure Food Law or the food laws of the various states, it would certainly seem unwise from a beekeeping standpoint to do so. Such a mixture when properly labeled would tend to perpetuate the mistaken idea, already too prevalent, that all honey on American markets is adulterated. This suspicion is, no doubt, the greatest handicap in marketing the honey crop of this country. If the American people knew the truth about the purity of honey now on our markets, it is doubtful if there would be any difficulty whatever in disposing of our crops at much better prices than are being received today. Placing such mixtures on the market would only intensify this suspicion already so prevalent in the minds of the public.

Some have set forth the argument that large quantities of honey might be sold through channels already open to corn syrup by such mixing, but it should be remembered that when honey is added to corn syrup it is for the purpose of selling corn syrup on the reputation of honey instead of selling honey on the reputation of corn syrup. If a carload of honey is used to make two carloads of the mixture, and the two carloads are sold on the reputation of honey as they would be because the label contains the word honey, the carload of corn syrup has displaced on the market a carload of honey instead of, as some would have us believe, the carload of honey having displaced on the market the carload of corn syrup. Furthermore, packers would put into the mixture only enough honey to permit the use of the word "honey" on the label, thus probably selling three or four carloads of corn syrup to one carload of honey, all being sold on the reputation of honey.

If any consumer has such a perverted taste that he prefers to eat a mixture of honey and corn syrup instead of straight honey, let him mix it himself after having bought the honey and the corn syrup separately. Viewed from every angle, it would seem bad business from the beekeepers' viewpoint, to degrade such a delicious and high-grade food as honey by mixing it with corn syrup, thus giving away to the manufacturers of corn syrup a part of the market for honey that has been built up so laboriously, and at the same time increasing the unfortunate suspicion regarding the purity of our product. It is certainly to be hoped that this effort of the manufacturers of corn sugar and corn syrup to enlist beekeepers in the ugly business of mixing will prove fruitless.

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Selecting Best Larvae for Queen Rearing

Mel Pritchard

Beginning with the Breeding Queen, Selection Is Carried Through Entire Process of Rearing Queens

[This is the first of a series of articles in which this veteran extensive queen breeder tells for the first time several of his latest developments in producing better queens. Each step in his improved methods will be illustrated and described in this and subsequent articles.]

It does not require much thought or skill to increase the output of queens. All that is needed is to enlarge the outfit or take a faster pace, following the old-time methods. But if the quality of queens is to be improved, it must be accomplished through better methods of growing them and by selection. It is to the latter that we must look for the greater part of the improvement. Selection does not mean the selection of breeding stock only; this rule must be followed through every stage of the queen's development. To select the best strain of bees and to make them better has for years been my constant endeavor.

Selection of the Breeding Queen

My opportunity for selecting breeding stock is exceptionally good. The A. I. Root Company is operating about 1200 colonies for honey production. Mr. Deyell and his apiary men are constantly on the lookout for the colonies that store the most honey. From these we select our breeding queens. Due consideration is given to color and temperament, but not to that extent that tends to lower their honey-gathering qualifications.

Providing Larvae of Known Age for Grafting

Having selected our breeding queen, the next step is the selecting of her larvae

Fig. 1.—Hive in which the breeding queen is kept. The queen is confined to the three small frames in the middle of the brood-chamber marked A, B and 1. The colony is kept strong by giving frames of brood as needed. Details of the middle compartment are shown on next page.

to be used in grafting. The old way was to use very small larvae in order to be sure that they were young enough to make good queens. I find that a larva may be quite small and still be too old. There are runts among them as well as with other living things. With our present method we select the largest, best-developed larvae to be found in the comb from which we take them, knowing that they are not too old to make the best of queens.

To accomplish this we have a hive arranged as shown in Fig. 1. This is a 10-frame Buckeye hive containing six standard frames and nine small frames, each having one-fourth the capacity of a standard frame. These are hung in three compartments, the middle compartment being made of queen-excluding zinc and the breeding queen kept in it. This colony is kept strong by giving frames of sealed brood taken from other colonies as often as necessary.

Frames A and B remain in the position shown but are examined once a week and any queen cells destroyed that may have been started. They are always filled with brood in different stages. Frame No. 1 is hung in the last thing before leaving the yard at night and is left 24 hours, then exchanged with frame No. 2. Frames 3 and 4 are exchanged in the same way. The fifth day the larvae are hatching in frame No. 1 and are used for the day's grafting. This is done about 1 p. m. The larvae that are not used are washed out by pouring water into the cells, and the frame is set aside until evening, when it is started on its second round, which is carried out in the same order as before. Formerly I changed the position of the little frames at grafting time but found that the larvae were rather too large on the fifth day, so now I change the frames the last thing in the evening. This results in larvae just the right age for grafting at 1 p. m. on the fifth day after the little comb was given.

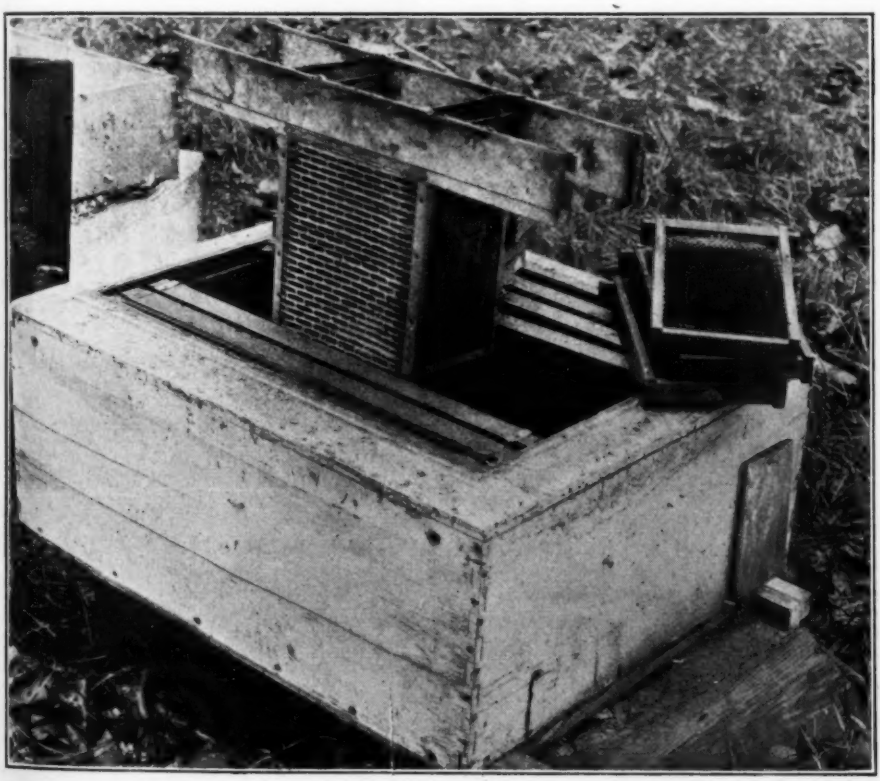


Fig. 2.—The framework forming the three compartments in the middle of the brood-chamber is here shown lifted from the hive. The breeding queen is confined to the three small frames in the middle by means of perforated metal.

Larvae to be Grafted Are Fed Lavishly

The only larvae this strong colony has to feed are those in this small frame and those that follow the emerging bees in frames A and B, which together is about one-fourth as many as would usually be in a colony of this strength. The result is that they receive the best of care, being fed so lavishly that they float high above the base of the cells, making them easy to pick up with the grafting needle. I find larvae of this size the easiest to transfer, and the most readily accepted in the grafting colonies, and I can see no reason why they have not had as good a start toward making a queen as though they had hatched in queen cells.

This arrangement makes some extra work, but I think it is more than offset by always knowing just where to find the kind of larvae wanted and plenty of them. During the past season there was only one day that I had to go hunting for larvae. That was following a Sunday when I forgot to change frames. We do not graft on Sunday, but do wash and change frames.

Medina, Ohio.

Mel Pritchard as he appeared after the bees were prepared for winter.

Queen-mating nuclei in the Basswood Apiary. Each hive contains two compartments to accommodate two nuclei. The basswood trees shown here were planted by A. I. Root in 1872. Many were cut several years ago to thin out the growth. They were used to make sections.

William M. Glebe, Master Farmer

Dr. E. F. Phillips

Beekeeper, Farmer, Horticulturist, and Shrewd Merchandiser--- a Combination That Spells Success

Agricultural papers of several states each year select outstanding farmers to whom the title Master Farmer is awarded. The methods of selection are so fair and the merits of the recipients are so obvious that this distinction is most highly prized and esteemed. Several beekeepers have been thus honored, including the veteran Wisconsin beekeeper, Mr. N. E. France, for years the manager of the National Beekeepers' Association. An Ohio beekeeper is on this list, and one of the men honored in New York last winter keeps bees for the pollination of his fruit trees.

The City Man Buys a Poor Farm

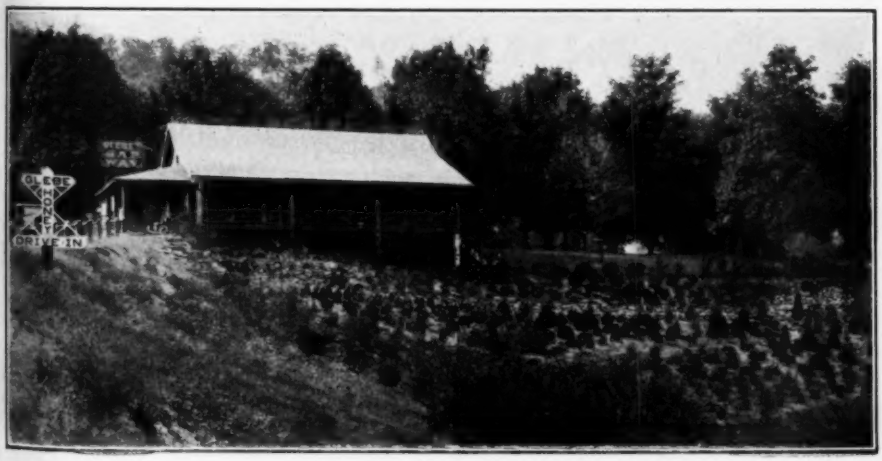
Among the 1931 Master Farmers in Pennsylvania is William M. Glebe, Delaware Water Gap. His home, Gap Way Farm, overlooks the Water Gap in the hills of Monroe County, a region of marvelous beauty but not one considered as best for farming. Less than seven years before receiving this honor, Mr. Glebe was a successful druggist in Camden, New Jersey, but his health demanded that he change to an outdoor life. The combination of a city bred man on poor soil is a perfect setting for failure in farming, but failure did not result this time. Whenever I mention my friend Bill, it is to be understood that his wife is included, for she is an active and essential member of the firm.

When the Glebes bought their farm there was a young but neglected apple orchard on it. They consulted the county agent and numerous specialists, read, studied, and put the best methods into practice; the same procedure has been followed for everything on the farm. The Glebe system for getting help from specialists has been described by Mrs. Glebe, who says, "I feed them and Bill pumps them."

When Mr. Glebe learned that honeybees are useful for fruit pollination, he bought some bees and soon became an enthusiast for bees and especially for honey. The bees get good care, pay their way in honey and there is no lack of pollination. Insect and disease control on the fruits is said by the county agent to be almost perfect. Vegetables are also grown, always from select seed, but there is not room to discuss all of the many undertakings on the farm.

Selling Quality Products at Roadside

Monroe County, Pennsylvania, is a noted summer resort area and the Glebes live on the main highway. Sensing the possibilities arising from these facts, di-



Mr. Glebe's sales house from the south showing the plantings.

rect sale of all farm products are undertaken, and nothing is shipped to city markets. This has been possible largely because of an ability and a desire to make friends with everybody who stops, but the most important factor has been insistence on the strictest grading in size and quality of every product. No apple with a worm hole or spot is ever sold, or even made into cider. Nothing is sold which does not meet the strictest interpretations of the best grading rules. Lima beans and sweet corn are graded as carefully as are apples or honey, and a second grade article is a cull. It does not take long for news of such a policy to spread.

Their roadside house for the sale of their products is described better in the illustrations than in words. The products of the farm are sold here, but two good sales people can sell more than can be produced on a small farm, so they buy more farm products and include some things which they can not produce on their own farm. A considerable proportion of what they buy must go over the dump, because of the difficulty of buying properly graded produce. A producer of maple products in Vermont who sells nothing but the highest quality furnishes maple sugar and syrup. To help the people of the Smoky Mountains of North Carolina dispose of some of their hand-made pottery, their jars are used for some of the honey and maple syrup. Vegetables are bought from members of local 4-H Clubs, so as to give the boys instruction in grading and to help them market their products, and also because the boys grade more honestly than do their fathers.

Honey to Suit the Taste of Every Visitor

The chief interest of beekeepers in such an undertaking is naturally in honey sales. The Glebes have developed a philosophy regarding honey which will be given without any attempt to defend or to condemn any of its features. The basic idea in their selling of honey is the education of the customer regarding honey. When one does not come in direct contact with the consumer, it is often thought desirable to make a blend of honeys to suit the average taste and so as to be able to sell quantities of honey of the same quality and grade year after year. In such cases it is usually not desirable to attempt to sell any one particular kind of honey, because it can not be obtained in adequate quantity and of the right quality year after year.

Blending is not the policy with the Glebes. When, as often happens, somebody stops who says that he does not like honey, he is just the man for whom the Glebes have been waiting, for he is a prospect for education in honey and for a sale. Within a few minutes he has tasted several kinds of honey and has learned, probably for the first time, that honeys differ in color and flavor. He has discover-

The Glebe sales house from the north, showing the mountain scenery in the distance. Travelers who stop to admire the wonderful natural scenery find themselves at the door of this attractive shop

ed that there is at least one kind of honey which he likes. There may be several kinds for which he does not care, but it a fundamental principle with the Glebes that there is nobody who does not like some kind of honey. When the sale is completed, a record is made of the name and address of the customer, so that honey of the right kind can be supplied later on mail order.

A large assortment of honeys is always kept on hand, in liquid or creamed form, and one can get clover or buckwheat honey from nearby or any one of a number of western honeys. For the occasional customer who learned to prefer some special foreign honey in his youth in the old world, a few of the better known European honeys are imported. The honeys bought are always of the highest quality for each kind, and one of the difficulties of such an undertaking is to locate beekeepers who can and will invariably furnish nothing but the best quality honeys. Every honey container is distinctive and no stock containers are used, except the lithographed five-pound pail.

Fancy Prices for Fancy Goods

It seems perilous, in these days of depression among beekeepers and others, to suggest the prices which the Glebes get for honey, but otherwise the story is incomplete. One instance, an incident from late October, illustrates this. They mailed a half-gallon of honey at fifty cents per pound, plus postage, to an Ohio consumer, this honey having been bought from an Ohio beekeeper not far from the customer at a price less than one-fifth that which they received for it. With the exception of the foreign honeys, for which there is an obvious reason for a considerable increase in price, honeys of all colors and favors are sold at the same price, either as comb honey, or in liquid or creamed form. Of course, the price per pound is lower when honey is sold in quantity. Uniformity of prices is maintained on the ground that all high quality honeys are equally good, and that one has only to discover the particular honey which he prefers in order to be satisfied. They see no reason for suggesting to a customer that some of the honeys are inferior by offering them at a lower price. The education of the customer takes time, but the Glebes prefer to talk to a customer who finally buys rather than to wait for one who does not come.

When it is reported that somebody is getting good prices for honey, there are always those who think or say that this might happen once but that there would be no repeat sales. Their best customers are the old ones, and many people who have learned that high quality honey can be bought at Glebes send their friends there.

Price Cutting Causes No Alarm

There will also be those who think that evidently the Glebes are not cursed by price cutters. They are totally indifferent to the price cutter. Within a few miles on the same highway I have seen honey offered for sale as low as 60 cents for a five-pound pail. If a person uninformed

Interior of the Glebe sales house showing the attractive honey display. Visitors and tourists who stop for rest and refreshments and those who stop to buy high-grade fruits or vegetables are reminded of honey on every turn.

with regard to honey could be sure that the lower priced honey is of as fine a quality as that for sale by the Glebes, he would not pay the higher price, but those who drive along the highway have no assurance that the low-priced honey is fit for table use. From the past experience of most casual buyers of honey, the safest assumption seems to be that low-priced honey is inferior, for much of the honey sold by the roadsides and even in stores is of poor quality. Price cutting and the sale of poor honey have been tried in competition with them and have failed. One of the amusing incidents in the Glebe adventure in honey selling is that a beekeeper of some repute recently complained to Mr. Glebe that the honey market is being ruined by selling at such prices, when the Glebes are selling many times as much honey as is the complaining beekeeper.

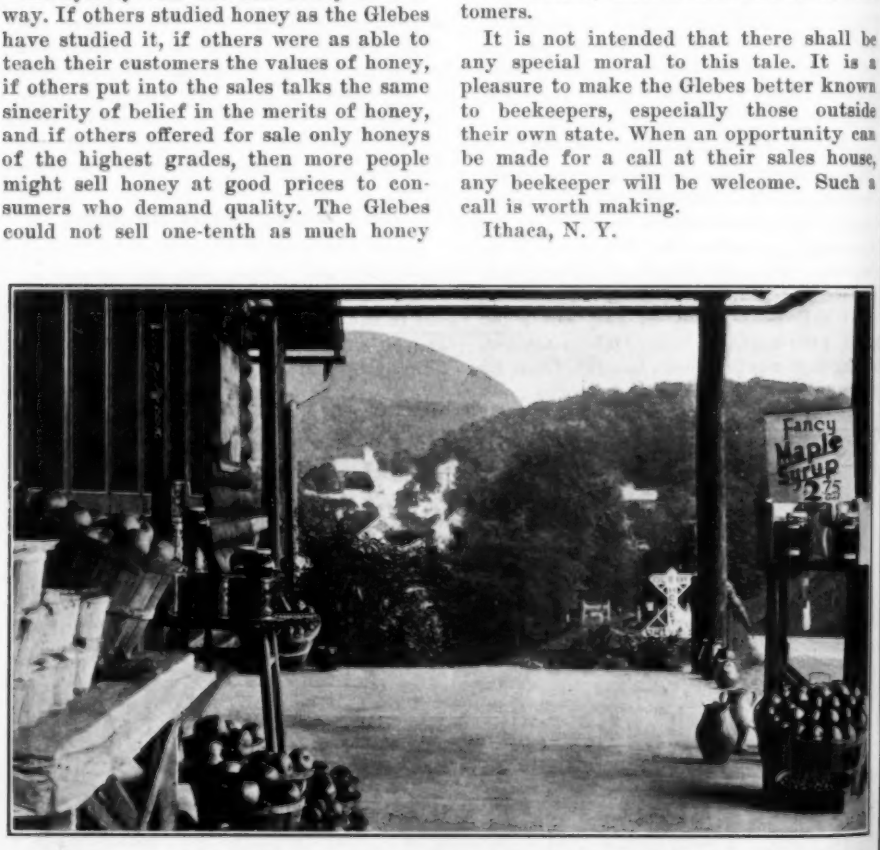
Everybody can not sell honey in this way. If others studied honey as the Glebes have studied it, if others were as able to teach their customers the values of honey, if others put into the sales talks the same sincerity of belief in the merits of honey, and if others offered for sale only honeys of the highest grades, then more people might sell honey at good prices to consumers who demand quality. The Glebes could not sell one-tenth as much honey as they sell, and could not get one-third the price which they receive, if they offered honey for sale with an expressed or implied apology.

Beautifying the Beautiful

The illustrations suggest the beauty of the country in which the Glebes live and also indicate the beauty which they have built into their home and its surroundings. They have a fine sales house, not a crude shed by the roadside, and the artistic plantings cause those who pass that way to know that the Glebes believe in their home and in their products. Whether all this planning, labor and expenditure should be charged to sales costs, or whether they can entirely or partially be charged to the beautification of the home will interest nobody but a cost accountant, but they pay in dollars and give satisfaction to the Glebes, their friends and their customers.

It is not intended that there shall be any special moral to this tale. It is a pleasure to make the Glebes better known to beekeepers, especially those outside their own state. When an opportunity can be made for a call at their sales house, any beekeeper will be welcome. Such a call is worth making.

Ithaca, N. Y.



The Delaware Water Gap, one of the natural scenic beauties of the United States, is a mecca for thousands of tourists and visitors the year around. It appears at its best across the porch of the the Glebe sales house, where fancy fruits, vegetables, maple syrup and honey are displayed to a good advantage.

Variation in Results in Disinfecting Combs

C. E. Burnside

Assistant Apiculturist, Bureau of Entomology, U. S. Department of Agriculture.

The Effect of Temperature and Other Factors in the Disinfection of American Foul Brood Combs with Formaldehyde

The most successful method yet devised for disinfecting American foul brood combs is immersion for 48 hours in a 20 per cent solution of formalin in water after all the cells are uncapped and the honey is extracted. Many thousands of the combs treated by this method have been used without recurrence of disease, but occasionally American foul brood recurs in colonies on treated combs. Disease most frequently recurs during the first season, but the evidence is fairly convincing that there may be recurrence after a colony has remained healthy for one or two seasons. The danger of spreading disease is increased by handling the infected combs preparatory to treating them.

The safest means of eradicating American foul brood is by burning, and when only a few colonies are infected this is the cheapest in the end. Occasionally, however, a considerable economic saving can be made by disinfecting the combs. When disease becomes widespread in large apiaries, making a general clean-up necessary, a great many combs that otherwise would have to be destroyed can be saved by treating them with a formalin-water solution.

Ahrens reports (American Bee Journal, February, 1930) that after prolonged incubation American foul brood scales gave growth of *Bacillus larvae* in culture after treatment with formalin solution for a period of time previously thought sufficient to disinfect them. Neither the temperature at which the scales were treated nor the length of time they were washed before cultures were prepared is given. Ahrens concludes that combs treated in the apiary with formalin-water solution are not safe to use.

Hambleton has pointed out (American Bee Journal, April, 1930) that Ahrens's findings can not have a retroactive effect and that the method now in common use of treating American foul brood combs with formalin solution is just as effective as it has been in the past. Had Ahrens tested scales from combs treated in the apiary by the formalin-water method and allowed to dry without washing, he probably would have found a higher degree of disinfection than he found in his laboratory experiments in which the scales were washed and cultured immediately.

In Ahrens's experiments, as well as in those reported here, partially disinfected scales required a longer period of incubation before growth of *Bacillus larvae* was obtained than did untreated scales. This delay in germination ranged from 1 to 30 days, and was occasionally longer. It is not known whether spores of *B. larvae*, whose germination in culture is considerably delayed after treatment with formalin solution, are capable of infecting honeybee larvae. It is probable that when disinfection is only partially complete, the danger of infection is at least proportionately reduced.

An interesting side light on this question has been obtained by A. P. Sturtevant in recent unpublished work. He found that a surprisingly large number of spores of *B. larvae* are necessary to produce American foul brood in a colony of bees, and that millions of spores may be fed to healthy colonies without producing disease. Sturtevant also found that a heavy inoculation with spores is necessary to produce growth in culture, light inoculations requiring longer incubation or producing no growth at all. It is possible, therefore, that, when disinfection of American foul brood combs is only partially complete, disease may not always be produced when the combs are given to the bees. To be on the safe side, however, partially disinfected combs should not be used.

Zebrowski recently summarized some commonly known facts regarding the structure and habits of micro-organisms and their destruction, including disinfection by formaldehyde (American Bee Journal, August, 1931). From these facts he reached the conclusion that brood combs treated with formaldehyde should not be allowed to dry but should be wash-

ed immediately after treatment. He has reported no experimental work in support of his conclusions.

The experimental results given herewith tend to contradict Zebrowski's conclusions and indicate that it is better to retain the formaldehyde in the combs as long as possible after treatment, since 48 hours' immersion does not always give complete disinfection. There is, therefore, need for further study of the formalin-water method.

In experiments at the Bee Culture Laboratory of the U. S. Bureau of Entomology, the rate of disinfection of American foul brood combs by formaldehyde in both the liquid and gaseous states was found to be influenced by temperature, strength of solution, rate of drying, and probably by variation in the spores of *Bacillus larvae* in resistance to disinfection. Temperature was found to be the most important factor with 20 per cent formalin-water solution as well as with solutions of other strengths.

Temperature an Important Factor

To determine the effect of temperature, three lots of 30 scales each were removed from the combs and soaked in 100 cc. of formalin-water solution in covered beakers at temperatures of 33°, 68° and 97° F. respectively. Scales were removed from the solution daily, thoroughly washed in sterile water, and cultured at 97° F. for 30 days, or until growth of *B. larvae* occurred.

Temperature was found to have a much greater effect upon the rate of disinfection than was expected. At 33° F. complete disinfection was not obtained in any lot of scales. Scales soaked for a day in 20 per cent formalin-water at 33° F. usually gave as abundant and rapid a growth of *Bacillus larvae* as untreated scales. Disinfection was apparent in some scales after soaking for two days at this temperature. Scales kept in the formalin-water solution for more than two days required a period of incubation roughly proportionate to the period of treatment. At 33° F. not a single scale was completely disinfected in any culture, even after soaking for six days.

The rate of disinfection with 20 per cent formalin-water was found to be much more rapid at 68° than at 33° F., and still more rapid at 97° F. At the two higher temperatures most of the scales were sterile after 24 hours. Disinfection was usually complete at both temperatures after treatment for 48 hours, although in two cases good growth of *B. larvae* was obtained. After three days' treatment disinfection was still incomplete in one set of cultures. No growth was obtained after four days.

A considerable variation in the rate of disinfection was observed in individual scales. No attempt was made to explain this variation, but it emphasizes the importance of giving combs the maximum treatment in order to insure complete disinfection.

Scales were also treated in 10 per cent and 5 per cent formalin-water solutions at the three temperatures mentioned above. The rate of disinfection with these solutions was slower than with 20 per cent and was affected in the same way by temperature. Disinfection was more rapid with both 10 per cent and 5 per cent formalin-water at 68° or 97° F., than with the 20 per cent solution at 33° F.

The rate of disinfection was considerably more rapid with formalin-water than with formalin-alcohol solutions. A possible

TABLE 1.—RESULTS OF CULTURE TESTS WITH AMERICAN FOUL BROOD SCALES TREATED WITH 20 PER CENT FORMALIN-WATER SOLUTION.

Temperature of solution, deg. F.	Period of treatment, days.	Total number of cultures.	Number of cultures that gave growth of B. Larvae after an incubation period of—														No. of cultures giving growth.	No. of cultures not giving growth.	Per cent of scales showing growth.
			2 days	4 days	6 days	8 days	10 days	12 days	14 days	16 days	18 days	20 days	22 days	24 days	26 days	28 days	30 days			
33	1	40	35	2	2	1												40	0	100
33	2	35	*–	20	2	1	3	2	3	4								35	0	100
33	3	20	–	–	–	2	5	3	6	3	1							20	0	100
33	4	11	–	–	–	4	2	–	2	–	–	1	–	–	–	–	2	11	0	100
33	5	20	–	–	–	–	4	2	2	3	5	–	1	1	2			20	0	100
33	6	31	–	–	–	–	–	2	5	6	6	3	4	–	1	2	2	31	0	100
68	1	39	–	–	3	1	1	–	–	–	–	2						7	32	18
68	2	60	–	–	–	3	–	–	1	–	–	2	1	2				9	51	15
68	3	60	–	–	–	–	4	–	5	–	1							10	50	16⅔
68	4	25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	25	0

*A dash indicates that the cultures were examined and negative results recorded.

reason for this may be that the high concentration of alcohol hinders the absorption of formaldehyde by removing the water from the spores or by coagulating the outer layer of protoplasm (spore capsule) and producing a protective coat.

The effect of temperature on the rate of disinfection of combs treated with formaldehyde gas was also tested, although this method has not given satisfactory results in practical application in the apiary. When combs were treated with the gas in two-quart jars at 68° and 97° F., most of the scales in open cells were sterile within two weeks. At about 33° F., however, little or no disinfection had occurred after treatment for the same length of time. This can probably be explained by the fact that both the rate of evaporation of formalin and the rate of disinfection are decreased at low temperatures when gas is used.

The amount of damage to combs treated with formalin-water was also found to be affected by the temperature. At 97° F. some damage resulted within three days and it increased upon longer treatment. At 33° F. no injury was evident after combs had been soaked for two weeks. After the excess formalin-water had been extracted, combs were not noticably injured while drying. No damage resulted when wet combs were kept for several weeks in tightly covered hive bodies, coated inside with wax.

The effect of temperature upon both the rate of disinfection and the amount of injury to the combs is probably comparable to its effect upon the rate of chemical reaction. Most chemical reactions are retarded as the temperature decreases. Since the destruction of bacteria by a disinfectant is thought to be the result of oxidation or of coagulation of the protein, it may be expected that the rate of disinfection of American foul brood scales will be slower at low temperatures.

Disinfection Continues While Treated Combs Are Drying

In the experiments described above, the formaldehyde was removed from the scales by washing them with sterile water immediately after taking them from the disinfecting solution. In actual practice, when treated combs are allowed to dry without washing, formaldehyde evaporates slowly and some of it remains in the scales for weeks or even months. To determine to what extent disinfection continues while combs are drying, combs were soaked for an hour at room temperature (about 68° F.) in 5, 10, 15, 20, 40 and 50 per cent formalin-water solutions and formalin. None of the scales in these combs were sterile when they were removed from the solution. After the excess solution was extracted, the combs remained wet for several weeks when treated in the above manner and immediately placed in tightly covered hive bodies, the entire inside of which had been covered with paraffin. Tests with cultures showed that disinfection continued until all open cells were completely disinfected.

As a rule, the stronger the solution the more rapid was the rate of disinfection. With 20, 40, and 50 per cent formalin-water solutions and pure formalin, all the scales in open cells were completely disinfected after 26 days, and in some cases less than 14 days were required. With the weaker solutions the results were less satisfactory.

Hive bodies which had been in use in the apiary and contained the usual coating of wax and propolis were also used. In these hive bodies the combs dried more rapidly and the results of the tests with cultures were slightly less favorable. With 20 per cent solution, however, dis-

TABLE 2.—RESULTS OF CULTURE TESTS WITH AMERICAN FOUL BROOD SCALES TREATED BY SOAKING THE COMBS FOR AN HOUR IN 20 PER CENT FORMALIN-WATER SOLUTION AND STACKING AND COVERING THE COMBS IN HIVE BODIES.
(ALL THE SCALES WERE TAKEN FROM OPEN CELLS.)

Period of treatment, days.	Number of cultures.	Number of cultures showing growth of B. Larvae after an incubation period of—														No. of cultures giving growth.	No. of cultures not giving growth	Pct. of cultures showing growth.
		2 days	4 days	6 days	8 days	10 days	12 days	14 days	16 days	18 days	20 days	22 days	24 days	26 days	28 days	30 days			
4	65	*–	23	12	3	–	1	–	3	5							47	18	72
7	40	–	6	8	–	4	–	–	–	–	–	–	–	–	–	1	19	21	48
9	40	–	2	–	–	1	–	–	–	–	–	–	–	–	–	2	5	35	12.5
26	40	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	40	0
28	30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	30	0

*A dash indicates that the cultures were examined and negative results recorded.

infection appeared to be complete in all the open cells after 30 days.

Some disinfection was also effected in sealed cells. With 40, 50 and 100 per cent formalin disinfection was apparently complete in from 30 to 60 days. With 20 per cent solution disinfection in sealed cells was irregular and could not be depended upon, although complete disinfection was obtained occasionally. The combs treated in this manner have been given to the bees, but the results of the apiary tests can not be given at this time. More than 3,000 cultures were made, but only two typical tables have been included in this paper.

Only Gas-treated Combs Need be Washed

The experience of beekeepers and tests at the Bee Culture Laboratory have shown that it is unnecessary to wash combs after 48 hours' treatment with 20 per cent formalin-water solution. The honey that remains in the combs after extraction is washed out while the combs are soaking, and after the combs have been dried very little paraformaldehyde is found in them. Bees readily accept combs treated with formalin-water and the loss of brood or adult bees from poisoning is unimportant. If the odor of formaldehyde remains in combs that have been stacked, they should be aired out before they are given to the bees.

When combs that contain even a small quantity of honey are treated with formaldehyde gas, the gas does not wash out the honey; on the other hand, the honey absorbs formaldehyde. It has been found that this honey retains the formaldehyde even though the odor of the disinfectant can not be detected, and that such honey is poisonous to bees. Even the cells that contain no honey retain more formaldehyde than those in combs which have been treated by immersion in formalin-water solution. This causes the bees to accept gas-treated combs with some reluctance. The first eggs deposited in the cells frequently do not hatch, and some of the brood may die from poisoning. To prevent poisoning when formaldehyde gas has been used, combs should always be washed before they are given to the bees.

Summary

1. The formalin-water treatment is the most reliable method yet devised for disinfecting American foul brood combs.

2. Combs soaked for 48 hours in 20 per cent formalin-water solution at a temperature of not less than 68° F. can be considered safe for use.

3. After the excess formalin solution has been removed, combs should be stacked, while wet, in tightly covered hive bodies in order to prolong the time of disinfection.

4. Combs treated for 48 hours with formalin-water need not be washed, whereas combs treated with formaldehyde gas should be washed before they are given to the bees.

Washington, D. C.

Beekeeping as a Business

H. H. Root

Two Enterprising Beekeepers Whose Perseverance and Hard Work Have Been Rewarded

Evidence is accumulating rapidly, proving that young men who are willing to study and work hard may have success, commercially speaking, in producing honey today. Honey has not suffered in price to the extent that most farm products have suffered. The work, while hard and intensive, is confined quite largely to the summer months. With the good books available today and good magazines, the young man taking up beekeeping does not have to do the detailed work that the beekeeper of forty years ago thought necessary. While the old saying that bees work for nothing and board themselves will never be strictly true, it comes nearer the truth today than at any other time.

Strong Production Unit Formed by Partnership

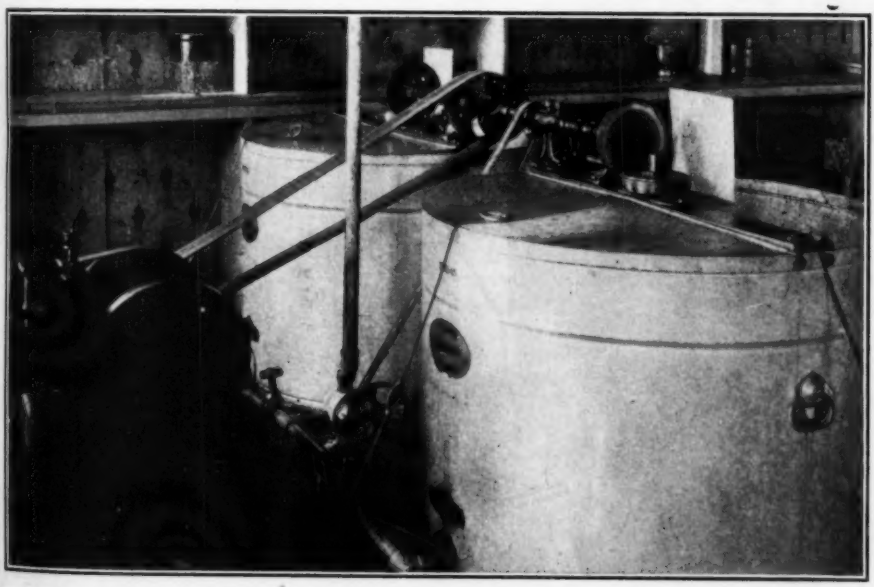
Lloyd C. Gardner of Delaware, Ohio, in 1927 had been keeping bees in a small way for about thirteen years. That year K. R. Fuller, who had also been keeping bees about the same length of time and who had spent a season with R. F. Holtermann, in Ontario, joined forces. Mr. Gardner's own experience had been enriched by ten

Mr. K. R. Fuller, beekeeper and mechanic, with experience in two countries.

years of field work and inspection service as deputy state apiary inspector. These two young men, combining their years of preparation and their willingness to get out and work hard, entered commercial beekeeping in earnest, in 1927.

Fuller and Gardner have had their ups and downs, but, encouraged by the fact that the downs have been on the decline, they have never faltered. A long story may be briefly told by saying that they now have 600 colonies of bees, all on standard combs, both brood and super. They insure plenty of stores at all times

Lloyd C. Gardner, beekeeper and deputy apiary inspector.



Gardner and Fuller's extracting outfit. The shafts are connected with a fiber universal joint, permitting each extractor to be independently operated.

by the use of shallow food-chambers, saving expensive labor as well as bad losses when the unexpected happens. Since the hives are located in pairs, they are pushed together in the fall until they touch, then a light, rough framework is set over and lined with roofing paper. After a bridge-work is arranged over the entrances, packing material from a truck is shoveled into the case until it is level full, and a cover put on which is fastened to the frame-work with hooks. This plan was illustrated by E. R. Root in the October number of Gleanings for 1930.

Method of Extracting the Honey

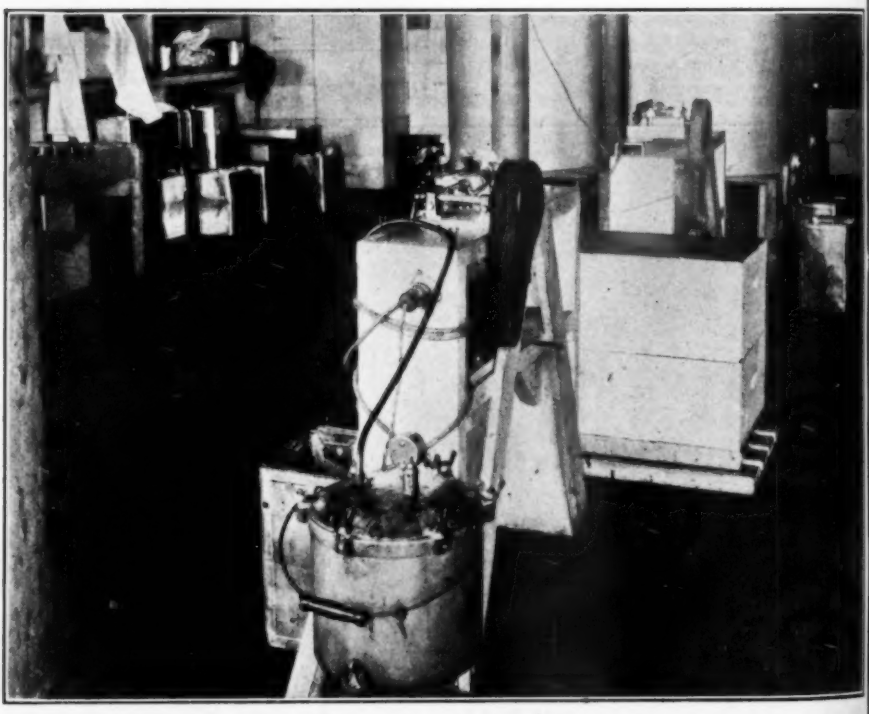
Fuller and Gardner use two large extractors and two uncapping machines. They do not make a practice of extracting all day long ordinarily for they are constantly interrupted by the necessity of making honey deliveries and other routine work. Working only a part of a day, the two have extracted three and one-half tons of honey. Their comb breakage averages about five in ten thousand which is a remarkably good record.

The two extractors are hooked up in a novel way. Ordinarily it is not good practice to have one long shaft connecting two extractors, for each extractor must be free to weave slightly when under full load and this weaving makes trouble with the bearings if one long shaft is used. Mr. Fuller hit upon the plan of using a fiber universal joint, obtained from an automobile junkyard. Bushings were made to fit this to the extractor shafts. Each extractor can thus be operated independently. There is no strain on the bearings. One belt from the gasoline engine drives both.

To provide steam for the uncapping machines a steam pressure cooker is used. It is equipped with steam gauge and safety valve and it furnishes ample steam for the two machines, the heat coming from a gasoline blow-torch.

To save handling and lifting, the supers are placed on "dollies" which are merely small platforms with ball-bearing casters at the four corners. This permits a stack of supers to be shoved around the floor to any place, saves heavy lifting and much time.

The honey is pumped with a one-inch pump into tall tanks where it is allowed to settle before being drawn off into 60-pound cans.



A steam pressure cooker over a gasoline blow torch supplies steam for the two uncapping machines.

Four Hundred Colonies of Bees---500 Hens

Hector Inch

How Both Can be Managed Profitably Without One Interfering With the Other

Owing to the low price of honey, it seems that the time is past when twelve months' pay can be received from six months of work. After one has his equipment for bees made up it is only a matter of a few days or weeks to look over the equipment to make necessary repairs, alterations and replacements in the spring, prior to unpacking the bees. Therefore, the question arises, what can a beekeeper do in the remaining time to be profitable and thus help to purchase the comforts of life.

It has often been said that one can not have his mind on two different lines and concentrate on both, yet it is possible to do so. It is when one is willing to do something out of the ordinary that he will meet with a little better success.

Why Poultry Fits in Well With Beekeeping

There are different things a beekeeper can carry on with the bees that can be arranged not to interfere when the busy spell is on during the summer. I have chosen poultry because it makes a steady cash return, can be started quickly and, if necessary at any time, can be disposed of quickly as there is always a market. Before any one attempts to begin with poultry, a thorough knowledge of the business is required to avoid the many pitfalls hidden in the pathway, but this information can be readily secured from any agricultural representative.

After a couple of years' experience, I found that 500 hens can be looked after without interfering with the bees. During the active season with the bees, the hens can be fed and looked after in the morning before breakfast and they do not need any more attention until evening. I am giving here a brief explanation of how I look after 400 colonies of bees with 500 hens for a side line. One soon learns short-cuts that he would hesitate to take before crowded for time so much. I used to look after this amount of work alone, with the help of my wife, who looked after the poultry during the rush in summer, but now I have a helper for the summer months.

Beginning around the first of April the two-colony houses are prepared by thoroughly cleaning for the 800 baby chicks. We plan to have the chicks arrive around April 10, and to have them fairly well started before any work is commenced at the outyards.

Labor Saved by Better Beekeeping Equipment

Our bees are wintered in double brood-chambers and packed in twin cases. These cases are made deep enough to hold a deep super on top of the double brood-chamber, and also with entrances that can be opened full width. Sometimes the colonies will require a super before I get them unpacked, and perhaps the entrances opened up also.

Our twin cases are made in sections and are different from any that I have seen. They are rigid in strength, being easily moved around by one person. The cases when completed are 3 feet high, but for ease of handling they are in sections 18 inches high. The bottom, bridge and lower half of the sides are nailed solidly together. When the bees are unpacked, the shavings are thrown back into the case. The top sections are also placed inside, then the cover is put on. Thus only one-half of the case is exposed to the weather when not in use.

I have 50 colonies in a yard arranged so that the winter cases are not moved. When unpacking, I set the colonies out in front on cement bricks and return the shavings to the case. When unpacking is completed, the yard has a neat apparance with the cases still there, but only 18 inches high. I have never noticed any drifting. I used to set the colonies at the ends of the case, but the bees would nearly all spend considerable time returning to the winter case and some would get lost.

Much Accomplished on First Visit in Spring

I usually begin unpacking around the middle of May and try to make the one trip at each yard do the four operations, namely, unpack, clip queens, place a super

of combs on each colony above a queen-excluder, and make enough two or three-frame nuclei to fill up winter loss and perhaps a few extra. For these early nuclei I arrange to have queens on hand by mail from the South.

I find that by wintering in double brood-chambers, our bees are strong enough to make suffucient nuclei. However, if there should be a number of strong colonies from which no brood was taken, I transpose the brood-chambers before placing on the super. This seems to cause the bees to establish a new brood nest which in my estimation reduces swarming to a minimum. Sometimes the fruit and dandelion honey flow is over before I finish unpacking, in which case I leave the balance of the clipping until the beginning of clover honey flow.

Swarming Problem Easily Solved

After this first trip, I don't see the bees any more until the clover honey flow starts. They have the two brood-chambers to raise brood and the super for any honey that might come in. Even if there is no honey in this super before I get back, it seems to be necessary to provide extra room for the bees to cluster.

Around the middle of June or perhaps a little later, the clover honey flow usually starts, and I usually begin around the 20th to make the examinations at regular intervals of eight or nine days until July 20. As my yards are mostly from 12 to 22 miles from home and I have no home apiary, I try to make every step count, usually finishing a yard per day, sometimes two, if the weather is favorable. I begin on this trip to keep records of all colonies for the purpose of preventing swarming, because the strength of colonies produced by wintering in double brood-chambers presents a problem, the solution of which will be amply rewarded.

I make the first trip to the yards in which queens are not clipped. In examining for swarming I simply raise the upper brood-chamber and look up. I look carefully for queen cells, also to determine the amount of brood. If the colony is preparing to swarm I will find queen cells on the lower edge of the combs in this chamber as a rule. If there are eggs in queen-cells, I simply spread the brood or transpose the brood-chambers. If there are larva or capped cells, I shake all bees off the combs, destroy all cells, and transpose the brood-chambers.

I used to kill the queens of these colonies and leave them queenless eight days, then introduce a young laying queen, but I don't like the idea of leaving them queenless. I always have a few queens on hand, either a few by mail every day or a few raised in nuclei, because there are always a few queens failing and I like to have a young queen introduced as soon as possible.

As strong as the colonies are, it is surprising what a small percentage will be found continuing swarm preparation on the second visit. If our records show two visits and no sign of swarming the entry is marked "pass" and the colony is not examined any more for swarming during the season. In this way the bees can be examined rapidly. Also on the first visit, after examining the colonies, I place two more supers on each hive having now three supers per colony.

Although there has been much said about the let-alone plan, I think it pays to make regular visits because no two seasons are alike. I feel I am paid for every trip made. Quoting a slogan from a prominent cattle feeder, "The eye of the feeder fattens the cattle," I think it is so with th bees. One must know at regular intervals what is going on to have proper control and do things accordingly.

Requeening During Latter Part of Honey Flow

About July 10 I usually begin requeening. If I have time I requeen every colony, otherwise I requeen all that I can. When honey is coming in freely, requeening can be done with greater success. I simply kill the old queen and introduce a laying queen by the cage method. I like to have this work done early as introducing queens later in the season is usually more risky on account of the honey flow not being so sure.

The colonies now having a total of three supers above the two brood-chambers usually have enough super room. However, if more room is required, I place the empty super on top instead of raising the full supers to place empty super below. This saves a lot of lifting.

Separating Light and Dark Honey

I leave the supers of white honey on as long as possible to get the honey thoroughly ripened, and yet not have any buckwheat honey mixed in. Just as soon as the buckwheat is ready to yield, I make a rush to cut off all the white honey at once, by giving an empty super for the dark honey and piling the supers of white

honey on top above an escape board. If there are more than three supers of white honey, I brush the bees off the remaining supers and bring them home since four supers of honey makes the pile too high to lift and a wind storm might blow them over. Being rather short of supers it usually makes a rush to extract enough to supply empty supers for the dark honey.

Inducing Bees to Fill the Brood-chamber

At the beginning of the buckwheat honey flow and as soon as the white honey is off, I place the queen in the lower brood chamber, place the queen excluder on that, then the empty super, and finally on top of this I place the upper brood-chamber which now becomes a food-chamber. In this way the bees will fill the food-chamber and cap the honey over well, whereas if it had been left down where it was, even with the excluder between, the bees will not fill it the way it should be for successful wintering. If more supers are required I place them on top.

As soon as the dark honey is in, I rush it off as quickly as possible, beginning in early September. When taking off the dark honey, I give the colonies a final examination to make sure that each has a queen. If any queens are poor or failing, or otherwise not good, I smother the bees, take the food-chamber home and extract it with the rest. The excluders are taken off and the food-chambers placed in position. I make sure to winter only good colonies and make up the loss the following spring.

Wintering Successfully on Off-Grade Honey

The food-chamber contains an off-grade of honey. The outside combs are of the early honey flow, which is usually amber in color. The combs next to them are mostly filled with clover honey and the middle combs are filled with buckwheat honey. So far they have wintered fine on this honey.

During the last couple of years, having some extra work to do, I became so busy that I didn't have time to raise the food-chambers at the beginning of the buckwheat honey flow, and the queens occupied the food-chambers, so that they were not filled properly for successful wintering. Therefore, I had to give a few combs of honey to those that needed it to provide enough for winter. By saving out about two combs of honey for each colony to give them in the spring I have sufficient stores.

I try to rush the extracting of the dark honey as fast as possible because there is less honey left in the combs when extracted when the weather is warm and because I like to get the work fairly well on so as to have a little time to spend with the flock of young, laying pullets.

Culling Flock for Winter Layers

About the first of October I like to put the pullets into their laying quarters for winter. I make sure to have the pens thoroughly cleaned and disinfected. By that time the new flock of pullets will be well developed and laying on the range. I let them stay there until I have time when I cull over the old flock, keeping 200 of the best, which, with 300 good pullets, fill the pens.

As soon as they have settled down to their new quarters, I try to force the production of eggs as much as possible, because the months of October, November and December are usually the months of highest-priced eggs when the profit can be made. Sometimes the hens are forced to such an extent that they are through by spring and the flock can be sold off, leaving 200 of the best, but I arrange to purchase about 800 baby chicks every spring.

I try to have the bees packed by early November, wintering only good queen-right colonies on honey, and depending on making nuclei for making up loss. By this method I eliminate the expense and work of buying and feeding sugar. I also save the expense of purchasing packages to make up winter loss.

It has been my experience that for every extra pound of honey used for brood rearing in the spring, we get extra honey to extract. I think it is quite true as has been said, that when one decides to leave a deep super of honey for winter and spring stores, there is born a new bee-keeper.

With fresh eggs and honey there is a wonderful opportunity to sell direct to consumers, thus making the added profit. It is surprising how eggs will help to sell honey if located on a highway, by having an attractive sign, "Fresh Eggs and Honey." Everybody uses eggs and a lot of people prefer to purchase from the producer. When these people call for eggs, just let them sample the honey and say that you have some of that choice honey for sale.

Port Hope, Ontario.

Bright Future for Sweet Clover

E. R. Root

Some of Its Wonderful Possibilities for Farmers Sowing the Seed in February

Referring to the reasons as given in our last issue for the almost complete disappearance of sweet clover from some localities where it had been very abundant, one of our subscribers, G. F. Marsh of Canada, thinks that I did not give the most important—namely, that of supply and demand of the seed. Sweet-clover seed, he says, has no food or commercial value except for sowing on land and to improve the soil and provide forage.

When the price of seed was high, large areas in Kentucky were devoted to growing sweet clover seed which was shipped by the car load. The seed was the main or important crop and not the hay or the pasturage. When the price of seed came down to a point where it was no longer profitable to produce it, and when, too, other crops such as alfalfa and tobacco were more profitable, farmers did not sow sweet clover seed as formerly. Cattle would eat down the sweet clover pasturage until it would not reseed. The constant mowing of the roadsides would likewise kill it off there. He says, moreover, that the same causes have operated in Alabama and Mississippi where the legume has likewise disappeared.

In his locality, north of the Georgian Bay in Canada, where formerly there had been hundreds of acres of sweet clover, he says it is now nearly gone. Why? Because sweet clover seed would not bring more than a dollar a bushel and some farmers could not sell it at all. He, therefore, believes that sweet clover will never stage a comeback there, that its days of extensive growth "are past and gone forever," except on bad rough lands where other crops will not grow or where drouths or dry seasons kill out other crops.

Sweet Clover Has a Bright Future

Over against this view, there are others who think sweet clover has only just begun on its onward march. Among the number is Prof. C. J. Willard, agronomist at the Ohio State University and of the Ohio Experiment Station at Wooster. In his recent bulletin on sweet clover, Extension Bulletin No. 55, Ohio State University, his first paragraph reads as follows:

> A crop revolution has occurred in Ohio and other states of the corn belt. Fifteen years ago one would have traveled far to find a total of 1000 acres of sweet clover sown as a crop in Ohio. Today a single county has 30,000 acres of sweet clover, and the entire state over 300,000 acres. It is already the second legume in the state in acreage, being exceeded only by red clover. Sweet clover has become one of the standard farm crops of the state, furnishing rich hay and pasture and making possible the production of larger and larger yields of grain.

This whole bulletin, the best in my opinion that was ever published on sweet clover for the farmer and the beekeeper, is full of practical information in clear plain language that any child can understand.

Prof. Willard, an ardent advocate of sweet clover on the farm, stresses its value as pasturage for cattle and bees. He says it is "extremely drouth resistant, more so than alfalfa, and as a consequence furnishes a pasturage during summer dry periods when other pasturage plants fail." This makes it possible for bees to produce a crop of honey during a drouth as explained in previous issues. He states further that sweet clover is resistant to many diseases, more so than red clover.

Sweet Clover for Soil Improvement

It is here he says it has its greatest value. Listen to this:

> **The Equal of 20 Tons of Farm Manure**
>
> The most important single use for sweet clover is as a soil-improving crop. Many farmers grow it for this purpose only, and all who grow it have in mind its value for this purpose. On soils containing lime or to which lime can be added, sweet clover is so much the best soil builder that it stands alone.
>
> Sweet clover sown in wheat or oats in the spring and plowed under for corn in late April or early May a year later will turn to the soil anywhere from 75 to as much as 250 pounds of nitrogen per acre. It will require 20 tons of ordinary farm manure to add 200 pounds of nitrogen to the soil. How many farmers apply 20 tons of manure to each acre every 4 years? The equivalent of this can easily be secured and a grain crop produced every year by sowing sweet clover in the small grain and plowing it under for corn in the 4-year rotation of corn-oats-corn-wheat.

He has much to say of its value as a plow-under crop and how it enriches and loosens up the soil.

Sweet Clover for Pasturage

On the value of sweet clover for pasture,

he says many nice things that will help the beekeeper. When pastured by cattle and hogs it always makes good and prolonged pasture for bees.

Sweet clover is rapidly becoming one of the leading pasture plants of the corn belt. The old belief that "stock won't eat it" has been exploded too often to have weight at this time. When stock that are not used to it are turned into a pasture containing sweet clover and plenty of other feed they do not eat the sweet clover, but if turned into sweet clover alone when in proper condition or into a mixed pasture early, little trouble will be experienced.

Many Virtues as Pasture

Its carrying capacity is amazing. The difficulty is usually to keep stock enough on it to keep it from getting too coarse. Farmers have estimated the carrying capacity of sweet clover to be from one to four mature animals per acre. In general, it will carry double the stock that bluegrass or mixed grass pasture will on the same land. Stock of all kinds thrive on it.

Sweet Clover Hay

Under this head he says:

First Hay the Equal of Alfalfa

Hay may be cut from sweet clover either the year after it is sown, as with red and alsike clover, or, on well-adapted soils, in the fall of the year it is sown. The best hay from sweet clover is secured the year it is sown. This hay is fine, leafy, easily cured, and the equal of any alfalfa in composition, palatability and feeding value. It should ordinarily be cut late in September, and need not be cut higher than other hay crops are cut. On good soils, the yields will average from 1 to 2 tons, with exceptional yields higher. The two-year rotations—corn, oats (sweet clover), or corn, wheat (sweet clover)—are thus among the most intensive possible, since they give two grain crops, a hay crop, and a green manure crop large enough to maintain and increase the grain yields, all in two years.

It should be understood that, when hay is produced, there is less forage for bees and none whatever if the clover is cut the first year after seeding. When cut the second year, the hay is not as good. It is apt to be more woody and even then it should be cut before it is at its best for the bees.

Sweet Clover Cause of Disease in Cattle

In a few cases sweet clover hay, if of poor quality, has been known to cause a disease in cattle. This malady that causes intestinal disturbance and causes the blood to fail to clot is fortunately not common. It affects young cattle but not horses, young or old. Apparently good sweet clover hay causes no trouble. It is only the moldy, spoiled, or improperly cured that causes sickness or death. Even hay that is moldy may not affect the cattle.

Little is known as yet about this malady. I have made repeated inquiries among beekeepers in sweet clover areas all over the United States, but most, if not all, never heard of it. The best information available on this subject is found in Bulletin No. 250 and Circular No. 106 by Roderick and Schalk of the Agricultural Experiment Station at Fargo, North Dakota.

It should be made plain that sweet clover pasturage does not affect cattle or horses. When the pasturage is made up of mixed alsike and sweet clover, cattle, horses and bees have a feast. The coats of horses and cattle are sleek, and they thrive. Beekeepers everywhere should spread this gospel among their farmer neighbors, especially among the drouth afflicted.

But there is not much use in promoting sweet clover among farmers unless there is sufficient lime in the soil. If it is not there it should be put there. In addition the soil should be inoculated with sweet-clover bacteria. On this point see your county agricultural agent or, if there is no such person in your county, write to your state experiment station.

How to Get a Catch of Sweet Clover

Many farmers and beekeepers are broadcasting unhulled sweet clover seed on honeycombed frozen soil in January or February. The freezing is essential to break or crack the seed coat. The honeycomb soil catches the seed and holds it. As soon as the ground thaws the honeycomb pockets close over the seed. It requires about 20 pounds of unhulled seed to the acre or about half that if the seed is hulled and scarified. Scarified seed should not be sown on honeycombed soil since it germinates so quickly that the seedlings are liable to be killed later by freezing.

For most northern localities the early part of February is an ideal time to scatter either the unhulled sweet clover seed or hulled but not scarified on frozen soil. There are millions of acres of ragweed land that might better grow sweet clover.

Before one attempts to sow sweet clover seed, he should by all means consult the county farm agent. Unless this is done much of the seed will be wasted and at best there will be only an imperfect or poor catch.

In the next issue I shall tell how to put in sweet clover along with nurse crops, such as early oats and wheat. This, of course, will be after spring opens up and the soil can be cultivated.

From the Field of Experience

PROFITS FROM PACKAGE BEES

The Modern Method of Replacing Winter Losses and Making Increase.

Spring is almost here, bringing along with it prospects of winter losses as well as those of a new season. The question of package bees naturally goes with any discussion of the kind. Do they pay? That they do, and why they do I will attempt to show by presenting a few facts.

First, as every beekeeper knows, idle equipment is costing money every minute. If for that reason and no other, the purchase of bees by the pound is desirable. An empty hive has not simply quit earning for its owner, it is depreciating—losing part of its value. An empty house earns no rent and becomes worth less without additional expense of upkeep.

Second, packages can and will pay for themselves and even return profit the first season under proper management. A three-pound package at prevailing prices would require only a 75-lb. crop of six-cent honey to cancel the maximum outlay. Often 100 to 150 pounds or even more can be produced. Two packages which I purchased last spring produced a total of 250 pounds of honey, returning to me, after retailing the honey, a profit of $15.00 or $20.00. It is poor business to let a single hive be empty.

Third, there is the question of the beekeeper's time. Unless he intends to quit, which usually is not desirable, he should plan to operate as many colonies as before at least. We must find something to do, to occupy our working hours. Package bees offer an opportunity to make the most of conditions to have a full field in which to work.

Fourth, they furnish an entirely practicable method of increase. Division is not always feasible, but package bees will make a very nice apiary (or a bigger one) in the course of a season. In fact, an entire start on a large scale can be successfully made with packages.

Fifth, though probably not of a commercial aspect, there is the knowledge and pleasure to be gained—more easily from packages than many other ways. The entire life of a colony, from its installation to its zenith is pictured in its growth. The interest is equaled by few other things. It is truly an "observation hive."

Yes, package bees do pay. Big dividends are paid, both in money and pleasure. They are futurity sold by the pound in whose unfolding I watch with never-failing interest.—C. M. Isaacson, Middle River, Minnesota.

LOW PRICES MET BY SHORT CUTS

Making Profits from Labor-saving Equipment—Short Method of Requeening

The successful operation of any enterprise depends upon the equipment, location and knowledge of the business. The beekeeper, therefore, is no exception, and should be as well informed in bee culture as any business man is in his line of endeavor.

It is apparent that the beekeeper should make a thorough investigation of his business to ascertain where improvements can be made. This investigation covers the equipment and system. With such startling improvements in systems and equipments taking place continually, one should keep abreast with them. This is especially true now because of prevailing low prices on our products.

In our own enterprise we realized at the outset the importance of standard equipment, so we have all standard factory-made ten-frame hives. The use of full sheets of foundation produced good straight combs that are easily handled. We use four supers for each colony to allow ample room for the queen and for the storing of honey. When properly manipulated, swarming is thus reduced to a minimum.

Our extracting plant is two stories, which enables us to extract on the upper floor and let the honey run by gravity to the heating tank on the lower floor. The extracting equipment consists of a 45-frame extractor, automatic steam-heated uncapping knife, and a 300-gallon capacity copper tank that has an outer tank with a water jacket. A small upright boiler is used to heat the water surrounding the copper tank. In our climate we have found that heating is imperative to prevent fermentation and granulation.

The lower floor is also used for storing honey. The garage is connected with the main building, to permit loading and unloading supers without bees robbing. A chain block is handy for loading barrels or any heavy material in and out of the truck. With this equipment, large quantities of honey can be handled with little effort.

The management of many out-apiaries requires a system that will reduce visits as much as possible. We have made many changes in the past few years and the best was the method of requeening. Much time was consumed in finding the queens, so we have used the following plan with success:

We take three frames of brood and adhering bees from the brood-chamber and place them in the top super. We place a framed screen provided with an entrance, between the top super and introduce a young queen above. When this super is full of brood and bees, the screen is removed and the bees united with paper. The old queen, of course, is killed by the bees. The additional brood and bees is an asset to the colony, and big crops are gathered in a short while if there is a honey flow.

In the South, colonies should be requeened every year to obtain best results. Our queens are reared in three-frame nuclei and all cell-starting and finishing colonies are fed continually with honey. By having many finishing colonies, the queen larvae cells are well fed and thus produce large vigorous queens.

Beekeeping is really a business of details. No doubt that is what makes it so interesting.—E. C. Bessonet, Donaldsonville, La.

DISPLAY OF HONEY PLANTS

Frames Made of Light-Colored Beeswax Form Attractive Background for Them.

Honey-producing plants, mounted on frames of light, clear, yellow beeswax, make a rather unique display in combination with exhibits of bees and honey.

It is impossible to describe the pleasing effects of these mountings. Even the camera fails to record them. When seen from a short distance, the flowers seem to blend so perfectly with the soft, velvet-like, semi-transparent wax background that they appear to be made of wax also. In fact, scores of persons has asked if the flowers, too, were made of wax.

The illustration shows a small part of my honey display at the Colorado State

Honey plants mounted on frames made of light-colored beeswax exhibited at the Colorado State Fair.

Fair last September. There were in the display about sixty-five of these frames besides scores of other things made of wax. Beeswax can be utilized in many ways in making up displays. By using molds made from cement or plaster of Paris, a number of things, such as miniature bee hives, frames, etc., can be turned out in a very short time.

Any one who intends to have exhibits at fairs next season should plan and work on them now while there is plenty of time. Don't wait until fair time. Go after your blue ribbons now.—G. A. Pauli, Pueblo, Colorado.

DRY HONEY NOT DESIRABLE

Only Remaining Natural Sweet Should Not be Denatured by Refining Process

An old southern colonel once said, "Differences in opinion, suh, make hoss-races interestin'." It is "differences in opinion" that makes "Honey in Solid Form," by Charles Mraz in the December number of Gleanings, "interestin" to me.

Mr. Mraz writes in his article, ". . and make it into dry crystalline form like ordinary sugar. What a blessing that would be!" I doubt very much that it would be a blessing to put the only remaining natural sweet in the world, into a form like ordinary sugar. Yes, most anything can be done, but do not forget that there is a price tag attached to it.

Just look at the price tag attached to that clean, convenient, dry crystalline ordinary sugar. The cane juice is passed through evaporators until 85 per cent of the water is removed in the form of steam. It is then conveyed to tanks for treatment with lime, phosphoric acid and soda, for the removal of the remaining impurities, and then charged with sulphur dioxide to bleach it. Some of those impurities (?) are calcium and phosphorous, because if they are not removed it will not crystallize.

That was only the "cost price" you just read. This is the price you pay: refined sugar taken into the stomach will not digest until it is re-charged with calcium and phosphorus; with our diet of refined foods where have we any mineral salts, essential to our health, to spare?

Knowing this as you do, Mr. Mraz, you are only adding fuel to the fire because there will be a price tag attached to any method that will bring your blessing.

What is the trouble with granulated or whipped honey? A correspondence course in the proper use of the spoon, perhaps would break down this sales resistance. If "Old Drone" would only come out of Ab's barn, I am sure he could set you right.—Earl B. Pride, Lynn, Mass.

SPINSTER JANE SAYS—

Valentines have become practical greetings to our friends, instead of the sweet, lacy, bits of sentiment they once were. The romance and glamour have vanished, and not only in valentines. What have we instead? Brazen frankness, outspoken ideas on all forbidden subjects under the sun. Young and old are in search of thrills. Sex-appeal is the thing of the minute.

The "bug" of unrest has been scattered broadcast ever since the Great War. What can we call this microbe, this thing, that causes nations and people, singly and in groups, to resist all authority? Let us call it the "bug of freedom." Japan has it, and tries to sweep China, who is in her path, aside. India has it, and Mahatma Ghandi has it in its most virulent form. Russia has it in her Communism and asks even free love.

Our country must watch out. The fertile mind of man has devised companionate marriage, which is a close second to Russian ideas. Oh, these men!

Our young folk have the "bug." Dad and mother are old-fashioned and behind the times. Married folk have it. If you doubt it, go to Paris and Reno.

And this same "bug" has been the means of emancipating spinsters. It has given us a hankering for independence. No longer are we content to be the family door-mat, swept under until submerged by family interests. Otherwise we could have no real red blood in our make-up.

And of all jobs, it's beekeeping for mine—at first. Some day they will keep me. Beekeeping is ideal for women, anyway. The work is easy, the expense small, the return for care and work given is greater than in any other business, I believe. Men haven't the infinite patience, the thoroughness in details, that women have been educated to have.

Of course there will be stings, lots of them, but we are so used to being stung

by the family, as "old maids," that these keen thrusts will soon be forgotten.

If we can keep things outside shipshape and inviting, the bees will do as much inside. It will simply be females cooperating, and we can manage without the men's help, too. We can get thrills galore, in the business, and a wonderful content; honey, and from it, money, and Glory be! —independence. It should prove a fascinating study, with always something new to learn.

Now to begin with, I will study the A B C and X Y Z of Bee Culture, which I have used only as we use a dictionary. Next spring, in one or two eight or ten frame hives, painted white, and set in a sheltered, shady part of my garden, I shall begin beekeeping, all alone.

I shall choose Italians. We once had a hive of these near the hammock, and they never bothered us. Another lot of mongrel black fellows, seemed to know the minute I entered the garden. It was "hit and run" then. "Hit" for the bees, and "run" for me. No police investigation either.

Now with all necessary supplies, except foundation, at my disposal, I shall start on my own, and you shall learn my joys and sorrows, my hopes and fears, my success and failure—for there will be both, and perhaps some day, my discovery.

That was one of my New Year resolutions, kept under my hat until now. Yet men say we can not keep anything to ourselves.—Jane.

HEAT KILLS WAX-MOTH LARVAE

A Simple Method of Protecting Combs from Destruction by These Pests

Owing to the mild winter of 1930-1931, a large per cent of wax moth larvae evidently hibernated, and in turn their brood started its work of destruction unusually early. As a rule, extracting combs that have been stored in the honey house during the winter and subjected to zero temperatures, are seldom attacked by the moths before July at this altitude. I was much surprised to find that many sets of combs were infested in the early part of June.

To distribute several hundred sets of combs among the bees to have them cleaned, did not fit into my plans, so I decided to fumigate the whole mass with sulphur. Consulting my druggist I was told that three pounds of sulphur would be enough to fumigate the whole room of supers, which is 22 feet wide by 28 feet long and 14 feet high. After closing up all cracks and openings, including the chimney, I set fire to the three pounds of sulphur at 4 o'clock in the afternoon.

From the outside I observed things through the windows. Soon moths and other insects came flying to the windows to escape, but were soon overpowered by the gas. At midnight the sulphur was still burning full blast, and I don't know how much longer, as I went to bed and forgot it until next day. When I opened the doors and inspected some combs on the following afternoon, I found that the sterilization was not quite complete. Some of the worms, protected by their webs and tunnels, were still alive. However, most of them died later.

In an adjoining room were a few infested supers that were not fumigated. These were used for experimenting. I had observed that the moth larvae are very sensitive to heat, and that, if exposed to the hot direct rays of the sun, they live only a minute or so, depending on the intensity of the sunshine. I had also noticed that sets of combs in hives with thin dark covers exposed to the baking sun during the hot summer months are seldom destroyed while those that have shade boards or otherwise protected are soon alive with moth larvae.

Reviewing these facts, I decided to determine how much heat the larvae really would stand. A few were put into glass tubes that were sealed and submerged in warm water. At a temperature of 120° F. the worms were all dead in 5 minutes, while those that were subjected to 115° were all dead in about thirty-five minutes. Undoubtedly lower temperatures would destroy them, but no further test was made.

Those sets of combs not sulphured as mentioned above, were then placed under a tin roof where the temperature would go up to 125° or better on hot days. After being left there a day, all moth larvae were killed. It was found, however, that larvae protected by their webs and burrows could withstand the temperatures for several hours.—G. A. Pauli, Pueblo, Colorado.

BITS OF WISDOM

Lessons Learned from Years of Experience in Beekeeping

A man who has his desk littered with yesterday's business, has no time to plan for tomorrow.

We have often wondered why Noah didn't swat the measly pair of bee moths when they were sneaking into the ark when he had such a good chance at them.

Little Tommy was saying his bedtime prayers when his sister sneaked up behind him, and tickled the soles of his feet, "O Lord," said the little cherub, "please excuse me while I knock the stuffing out of Nellie."

It is not what a man does during working hours but what he does after them that breaks down his health.

About seven years ago one of our very best Canadian honey producers, through one of the American journals, made the prediction that in ten years we will hear very little about the food-chamber. This reminds me of what happened when Col. Bob Ingersoll predicted that in ten years, ten theaters would be built to every church. When the time was up, Chaplain McCabe sent the following telegram to the celebrated atheist:

"Dear Colonel, ten years ago today in an address given in one of the theaters of this city, you said: 'In ten years, for every church built during that year, ten theaters will be opened for business.' I am happy to inform you that one Christian denomination alone has dedicated 10 churches for every day in the current year. Please make another prediction for 1888."

Well, I have been watching the articles in the bee journals and am forced to the conclusion that the converts to the food-chamber system have increased just about 35 per cent since the first mentioned prediction was made.

I have made very few predictions in my time; some of them have gone wrong, but here is one I feel pretty safe in making: I think that, before ten years, every honey producer (save probably a few who still have their heads in the maze of 25 years ago) will winter his bees on natural stores, feeding sugar only to colonies that might be suspected of having some honeydew or other stores, the consumption of which might be conducive to unsuccessful wintering, then feeding not more than one 10-pound pail, or, in extreme cases, two. This syrup would be consumed first, leaving the honey for later consumption when a flight within a month or two would do no harm. Bees consume very little stores until brood rearing starts.

I used the food-chamber long before it was talked about but didn't give it that title. This reminds us of the old man whose son came from college full of the simplified spelling fad and gave his father a sample of it. Said he, "We spell one w-u-n, door d-o-r-e, through, t-h-r-u," etc. "Huh!" said the old man, "you young dudes have nothing on me, I've allus spelled 'em that way."

I notice, by the ads listing sections, that our American friends lean strongly to the 4¼x1⅞ section which, when filled, may weigh 16 ounces. Here in Canada the 1⅝ beeway section (excepting the 4x5x1⅝ plain) is used almost exclusively. I don't and never did like the 12-ounce section and scrapped our equipment for that skimpy looking little runt 25 years ago. I shall never forget what pleasure it gave me the first year I viewed the first 2000 tall sections filled plump to the corners, scarcely a pop hole in one of them. The equipment for these sections was about perfect, 2-12 of an inch between the slats and 2-12 plus for the section opening at the bottom. Much more than this leaves ridges across the face of the combs and "lips" at the top or bottom.—J. F. Dunn, Ridgeway, Ontario.

INTERNATIONAL CONGRESS

Greatest Meeting in the History of Beekeeping to be Held in Paris This Year.

Although the International Apicultural Congress will not convene in Paris until July, 1932, it is already the focus of a great deal of interest. It will undoubtedly be one of the largest and most important meetings in the history of beekeeping.

Meetings of beekeepers in England and on the Continent will be held immediately preceding and following the Paris Conference. For instance, word has been received from the Glamorgan Beekeepers' Association, "Y-Bwythyn," The Graylands, Rhiwbina, Glam., Great Britain, in which the Honorable J. W. Gedrych, Secretary, extends a cordial invitation, as follows: "Should you know of any of your country-

(Continued on page 121.)

From North, East, West and South

SOUTHERN CALIFORNIA. — December certainly treated us well in southern California so far as rainfall was concerned. Records show around nine inches so far over most of the country. This is a most encouraging start for the new year. Weather conditions during the honey flow are always largely a determining factor in the amount of honey we secure, but the first requisite always is the moisture content of the soil. Grass is green on every side, and in many cases it is six inches high. Growth in plants has started, and in some cases, like black sage, is several inches long already. In 1894, bees that were moved to the hills gathered nectar from the black sage the last days of February, enough to live on. Of course that is very unusual but not at all impossible.

While Abundant Rains Have Put Honey Plants in Excellent Condition, Many Colonies Are in Poor Condition Because of Lack of Stores.

Bees are in fair to poor condition. No late honey flow is probably the principal reason for this. Some beekeepers will feed and keep their colonies up in that way, but too many will let them come through and make the best of what is left. Feeding is only partially satisfactory at best but it is certainly preferable to letting them starve.

It has been several years since our bees filled up quite full for winter as they did years ago. Just why this is, we hardly know. It is possible that our short rainfall the past several years is the principal reason, as bloom that should come in the late summer and fall either fails or from the lack of moisture fails to secrete nectar. Most beekeepers extract most if not all from the supers trusting that the bees will fill up for winter. If they do, all is well, and if not—well, we then have a condition like the present.

Honey prices remain about the same. Buyers are not anxious to load up. Apparently they buy only when they have orders. Prices of agricultural products are surely upset and honey is no exception. Many beekeepers are wondering how long it is going to last. We saw a circular of a Los Angeles grocer offering bargain day buys. In it he had 5-pound cans of honey at 37 cents and 10 pounds of sugar at 39 cents. That should sell honey and sugar if anything would.

Many estimates and guesses have been made as to what it costs to produce a pound of honey, but so far we know nothing definite. One thing is sure, two or three more years like the last and we will know the price at which it can not be produced. It is all very well to kid ourselves that we have produced so much honey and made a nice crop but, in the final analysis, the balance left in the bank after all expenses are paid is the thing that tells the real story. We like the business, have had a good time these many years, and feel that we have made many worthwhile friends along the way. These after all are the principal things that make life worth living.—L. L. Andrews, Corona, Calif.

NORTHERN CALIFORNIA.—It is interesting to listen to the stories of the beekeepers, as they come in to see us, telling of their resolutions for the New Year. Resolving is a very easy matter. Accomplishing is more difficult. Any way the opportunities of 1932 are here for those who are ready for them. Some beekeepers, like others in various kinds of business, have failed. Fewer, however, than in any other kind of business. All such, whether producers, retailers or wholesalers, will have to begin again. If they have youth and health in their favor, beginning again will be quite easy. If older it may not be quite so easy but they can come back. It is 1932 and opportunity is just ahead of us.

The entire state has had good rains; the northern part has been specially favored and beekeepers are telling us that this is a helpful sign for a good honey crop. It may be quite a good sign but it is not a guarantee. Beekeepers must be ready when the bees want to work. Now is the time to have all supplies ready, plenty of supers filled with drawn combs or foundation, the trucks overhauled, and plenty of good locations. Then if you are in favored districts where you are sure of plenty of nectar, you have reason to congratulate yourself.

Colonies That Were Requeened Last Fall Will be in Much Better Condition for the Honey Harvest Than Others.

Many more than usual of our progressive beekeepers requeened all of their colonies in the fall and saw these colonies go into winter with the cluster made up principally of young bees. In a few weeks these bees will be at work. It will then be easy for the beekeepers to see that it pays to have young queens and strong colonies. Then a little later they will experience less tendency to swarm. Just why this is, we are not able to say, but our demonstration yard has shown us that it is a fact. The best results will be shown when the honey crop is ready to be taken off. If you do not believe this, compare results of colonies with two-year-old queens with those having young queens.

Again death has taken from us one of our highly respected beekeepers, H. N. Taylor of Chico, and for many years secretary of the Butte County Association, and a faithful member of the state association. We will miss him.—Cary W. Hartman, Oakland, Calif.

ARIZONA.—We have had fine spring-like weather during the past two weeks. Bees have been out flying practically every day. There were some light rains and snow in the mountains about Christmas time. Vegetation has started again, but is sure to get set back by cold weather later. It would be much better if it did not come out until March or April.

With light showers continuing the alfilerilla should do well this spring. This is the first and best pollen producer we have in the higher elevations in the early spring.

Bees examined a few days ago all seemed to be in fine shape, both as to amount of stores and the number of bees. Indications are that we will have a fairly early spring. With favorable weather through March and April, the bees here will come through winter in fine shape. The cold east winds we had all through November and the first half of December have let up. I do not regret this in the least. Cold winds are hard on human beings as well as bees which are out in the open, as practically all the bees in Arizona are.

I have not heard of any car-lot sales of honey being made in December. Honey is moving slowly at present. Should the railroads increase their rates as is being advocated, it will be a hard blow to large producers in the Intermountain Region. Already the cost of transporting honey to the large market centers cuts down considerable the price that the producer receives for his product.—Leslie Wedgworth, Oracle, Arizona.

MANITOBA.—Since writing my notes for the December issue, a great change has taken place in our honey marketing—so great that it is almost unbelievable. On November 10 one broker here claimed that he had 5000 cases of local honey in his warehouse and it was not moving. Others reported that their stocks were larger than ever before at this time of year. The price dropped a fraction of a cent and all that honey disappeared in a few weeks. This small drop was a step nearer the price of corn syrup and only a fraction of a cent higher.

We believe that the publicity given the change of the public institutions and relief stations from syrups to honey had much to do with moving the crop as the general public in western Canada consumes four times as much syrup as honey.

In the past month every beekeeper holding honey has received offers and the price has advanced a cent a pound. The wholesale market is now practically bare of offerings and some of the producers are wondering if they did not make a mistake in selling at so low a price.

The Reduction in the Price of Honey of Only a Fraction of a Cent Resulted in Clearing the Warehouses.

The results obtained in Manitoba this year seem to me to carry a rebuke to those who continually scold about the evils of price cutting. If the price had been even a fraction of a cent higher, there is no question but that this honey would still be in the warehouses. The majority, many of whom had a hold-over from 1930, are glad that they have their money. They are now busy overhauling equipment and preparing to do bigger business next year.

The matter of exchange is now being discussed and letters from the South indicate a desire to meet the situation so that the price of package bees will not be likely to be increased to any extent because of the depreciation of the value

of the Canadian dollar on the United States market.

So far the winter has been even milder than last year and cellar wintered bees are rather uneasy. Those who have packed outside are in luck. Altogether beekeepers seem much happier than at this time last year.—L. T. Floyd, Winnipeg, Manitoba.

UTAH.—Beekeepers of Utah have some reason to rejoice for there is more snow in the mountains at this time than for the past two years put together. Besides, it has a much greater water content. But, since last season was the driest in fifty years, it will take an unusual amount of moisture to bring soil condition back to normal. We must have deep moisture to sustain our best honey-producing plants. Wells had gone dry, springs had failed and mountain streams had ceased to flow. It is going to take much moisture before these old mountains can again pour out to us our agricultural life blood which is water.

While the East Has Had Unusually Mild Weather, Portions of the West Have Had Continued Cold.

Our winter has been very steady with considerable zero and sub-zero weather, and bees have had no flight since early November. This is not alarming as we had ten days in December that were warm enough for bees to handle honey as the temperature got up to 38° on several afternoons.

The one thing to be most feared for successful wintering is the fact that the colonies went into winter with fewer young bees than usual. The season ended so dry that there was little to stimulate brood-rearing. If we have a late spring, old bees are apt to dwindle before there are young bees to take their places.

Our local markets are fast consuming our little crop of honey. Possibly some foreign honey can be used before another crop. I do not know why January is always a poor month in which to handle honey unless it is because the holidays is the season of sweets.

Beekeepers enter the New Year everywhere with a confidence that the year 1932 A. D. (which we take to mean after the depression) will start us on the road to better demand and somewhat better prices. We don't ask to be pushed out in front with any special favors, but just favored with fair crops and a growing market for all other agricultural products. —M. A. Gill, Hyrum, Utah.

COLORADO.—The weather man was kind to the bees during the last two months of the old year and for the first few days of the new. December was comparatively mild and the bees had frequent flights. Temperatures were not unreasonably high and consumption of stores has not been unusual. It will require a continuation of this reasonable winter weather, if our bees are to come through in good condition. Following an unsatisfactory summer, our bees in this section did not enter winter quarters in the most desirable condition. A check was made early in November on over 1500 live colonies in the hands of about forty owners with a view to getting a fair estimate of the death loss next spring. The cause of death will be sought in each case of loss and a report of the findings will be made.

Honey Mixed With Corn Syrup Even When Properly Labeled Intensifies the Widespread Suspicion Regarding the Purity of All Honey.

The writer hopes that every beekeeper will read or has read the article, under the caption, "Short-sighted Salesmanship" on pages 9 and 10 of January Gleanings. There has recently been placed on the market, in a chain of stores, honey mixed with corn syrup. The mixture was placed with this firm by a self-style extensive beekeeper. Originally it was reported as being sold in contravention of the pure food laws, both state and federal. Authorities intervened and the mixture is now sold legally, the label having been corrected, according to later reports, to indicate properly the fact that the material sold is a mixture.

But whether it be legal or not the whole procedure recalls the old bugaboo of adulteration. It seems incomprehensible that any intelligent beekeeper should embarrass the industry and himself by reviving what the beekeeping fraternity has tried so valiantly to eradicate, that fear of adulteration. After all of the effort directed against the use of corn sugar on an equal footing with other sugars, it seems a pity that one should be so short-sighted.

The honey industry must purge itself of such ethics if it is to survive the stress of present-day competition. It was stated on the label that the corn syrup was used to prevent the granulation of the honey. It is not necessary to use that material to prevent granulation since other safe methods are available.—R. G. Richmond, Fort Collins, Colorado.

TEXAS.—The weather performed a regular Texas stunt in December. After three months with only a trace of rainfall, December started off with an inch rain and it has rained ever since. The temperature has been considerably above normal. The combination has given an immense start to the annual plants, which furnish the early honey flow. Sweet clover is coming up wherever the seed was in the ground, horsemint is growing rapidly, and the other native plants are up to normal. Burr clover, an introduced plant, is making such a wonderful growth that I think it will be worth while for beekeepers and poultry men to plant it for early spring pasture.

Last week I attended the annual meeting of the American Association at New Orleans, making the trip by automobile. Beekeeping subjects were discussed in two sections. In the division of genetics, two papers relative to beekeeping were read. Several others were on the program, but failed to appear. In the apicultural section, of which Dr. S. W. Bilsing of Texas was chairman, the entire time was given to papers of interest to those interested in the scientific end of beekeeping.

There Are Still Great Areas of Honey Producing Plants Where the Production of Honey Could be Greatly Expanded.

In crossing 350 miles of Texas and 300 miles of Louisiana to reach New Orleans, I was impressed by the fact that in Texas I did not observe any bees or honey signs along the roads although I knew that the highway passed within a short distance of several large apiaries. However, in all the restaurants and hotels visited, honey was on the table or to be had for the asking. On crossing Louisiana, hives could be seen from the highway, honey signs were common, yet in the restaurants and hotels honey could be had only by paying extra.

I was much surprised at the large areas through Louisiana that undoubtedly produce good fall honey flows. My impression of the entire trip was the enormous expansion of beekeeping that might be made.

The demand for honey is better than for some time, however, there is no increase in price. It is highly probable that, during this coming year, most of the honey from Texas will be marketed at home. —H. B. Parks, San Antonio, Texas.

NORTH CAROLINA.—Unusually mild weather conditions have caused the bees in some localities to make undue inroads on their winter stores. However, reports from practically all sections of the state indicate that bees have entered the winter in better condition than was expected after the light honey flow during the fall, and generally the bees are well supplied with stores. Some, however, will find it necessary to feed, and they may be depended upon to look after this important part of their work.

It is too early to anticipate the crop for next year, but the prospects are bright at present. Recent rains have helped greatly, and honey-producing plants are in normal condition.

Much honey is still in the hands of the producers. It is doubtful if more than half of the entire crop has been marketed. This is partly due to the excellent yield last year which resulted in more than the usual amount of honey produced.

The North Carolina State Beekeepers' Association will hold the sixteenth annual meeting January 21 and 22, 1932, before this appears in print. The usual topics will come up for discussion, but the problems of marketing will be more interesting than usual, perhaps more important than the problems of production.

At present, beekeepers generally are not feeling very optimistic but comparatively few are pessimistic. While marketing and prices do not look good, producers of other agricultural products are hit as hard or harder than the honey producers. Some North Carolina beekeepers have made money this year in spite of the lower prices, while others have held their own. Some of the farmers who keep bees as a side line have found that the side line furnished most of their net income this season. Encouragement of local markets has been very helpful.—C. L. Sams, Raleigh, N. C.

ARKANSAS.—The beekeepers of our state have their troubles. Last year our General Assembly appropriated $3700 for apiary inspection and development work, $2000 less than the previous appropriation. This, however, was vetoed by the governor. As a result, the work ceased July 1, 1931.

All this was done in the face of the fact that the beekeepers recommended and assisted in passing a provision to levy a tax of 10 cents per colony to assist in maintaining the work to develop apiculture and to eliminate disease. This tax is the only tax on our statute recommended by those affected. Therefore the beekeepers feel an injustice has been done them.

The executive committee of our state association thought best not to try to have a meeting last January on account of economic conditions. Now the time is here for another meeting and since conditions are even worse than last January, I do not know what we will do. So, for the first time since the organization in 1918, we failed in 1931 to hold our annual meeting.

The winter so far has been unusually warm. We had ice only three times up to January 1, 1932. Recently we have had rains. Now for a good season. I fear we shall lose many colonies from starvation unless we have lower temperatures.

Sales are slow, the item of cash being almost extinct. More sorghum molasses was produced last year than any other year in our history.—J. V. Ormond, Elba, Arkansas.

WESTERN OHIO.—While I am writing these notes (Dec. 29) the weather is more like spring than winter. Dandelions are in bloom and bees are flying nearly every day. I have just noticed black birds in my back yard. What effect this will have on the bees remains to be seen. We noticed that some colonies are rearing brood, which is not the best for this time of year. Our scale hive showed a loss of 5 pounds during November and December, which we consider very small, but if this warm weather keeps up the loss of stores will be considerably more. But there are still three months of winter left.

Honey plants are looking well at present, and if this kind of weather continues, they should come through the winter all right. Colonies that are well supplied with stores will winter well. We have put into winter packing cases 1000 colonies with an average of about 40 pounds of stores each, so we are not uneasy as to any shortage of stores.

The 1931 Crop of Honey Has All Been Sold in This Important Honey Producing Locality.

About 10 carloads of honey were shipped out of Delphos this fall. There is one more car that is sold and will be shipped January 1. This will clean up all the honey in the Delphos area. We have produced in our own apiaries 100,000 pounds, which is not so bad in an off year.

In spite of the low price of honey, beekeepers are faring well and they are happy and contented. We expect to leave for Florida in a few days to spend about three months in recreation and pleasure among flowers and sunshine.

We use a full-depth food-chamber, thus supplying each colony with an abundance of stores. However, the honey is taken from the food-chamber and placed in a single hive-body for winter. What is not needed will be stored until spring and then given to the colonies for their spring needs. In that way our colonies are always well supplied with stores. When the weather is bad in the spring, we don't have to worry about our bees starving.—Fred Leininger, Delphos, Ohio.

ALABAMA.—The extremely dry weather in the fall practically ruined the fall honey flow here. The bees gathered but little nectar after September 1. On the other hand the weather has been the warmest ever recorded here. There were no killing frosts before January 1, the lawns are green and some of the earliest blooming flowers are in bloom.

The Uncertainties of the Demand for Package Bees Make It Difficult to Gauge Production.

The package shippers are getting things into shape for the beginning of the season, although it is several months ahead. No one knows what to expect in the package business this season as there are so many things to affect it. The rate of exchange on Canadian money will cause some decrease in business from Canada unless it is lowered before the shipping sea-

son starts. The low price of honey and the short crop in some of the producing centers are some of the things that will affect the demand for packages. On the other hand there is the ever increasing demand for bees for pollination of fruit bloom and for use in green houses. Even if these are supplied with full colonies they will be more or less run down and killed off from spray poison and this will mean a demand for package bees.

The demand for honey has been fair despite the business depression and the ruinous prices at which some people are offering honey. There was, of course, a seasonal drop in the amount of honey sold during December due to the holidays. The prospects are that practically all honey in Alabama will be sold before the new crop is ready.

Beekeeping prospects are not as good as we would have them, but, taking everything into consideration, they are better than the prospects of most other rural industries.—J. M. Cutts, Montgomery, Ala.

ONTARIO.—Another month of unusually mild weather has passed since my last notes were sent in, and today (January 8) I noticed a few bees flying around the house—certain evidence that zero temperatures are not prevailing. There is practically no snow on the ground, but, in the absence of severe weather, grass and winter wheat are as green as they were in Septembr.

Weather Bureau statistics show that the average temperatures vary but little each year in our district, so if an average temperature is to be recorded for six months starting October 1, 1931, we certainly will have to experience unusually severe weather for the next two months.

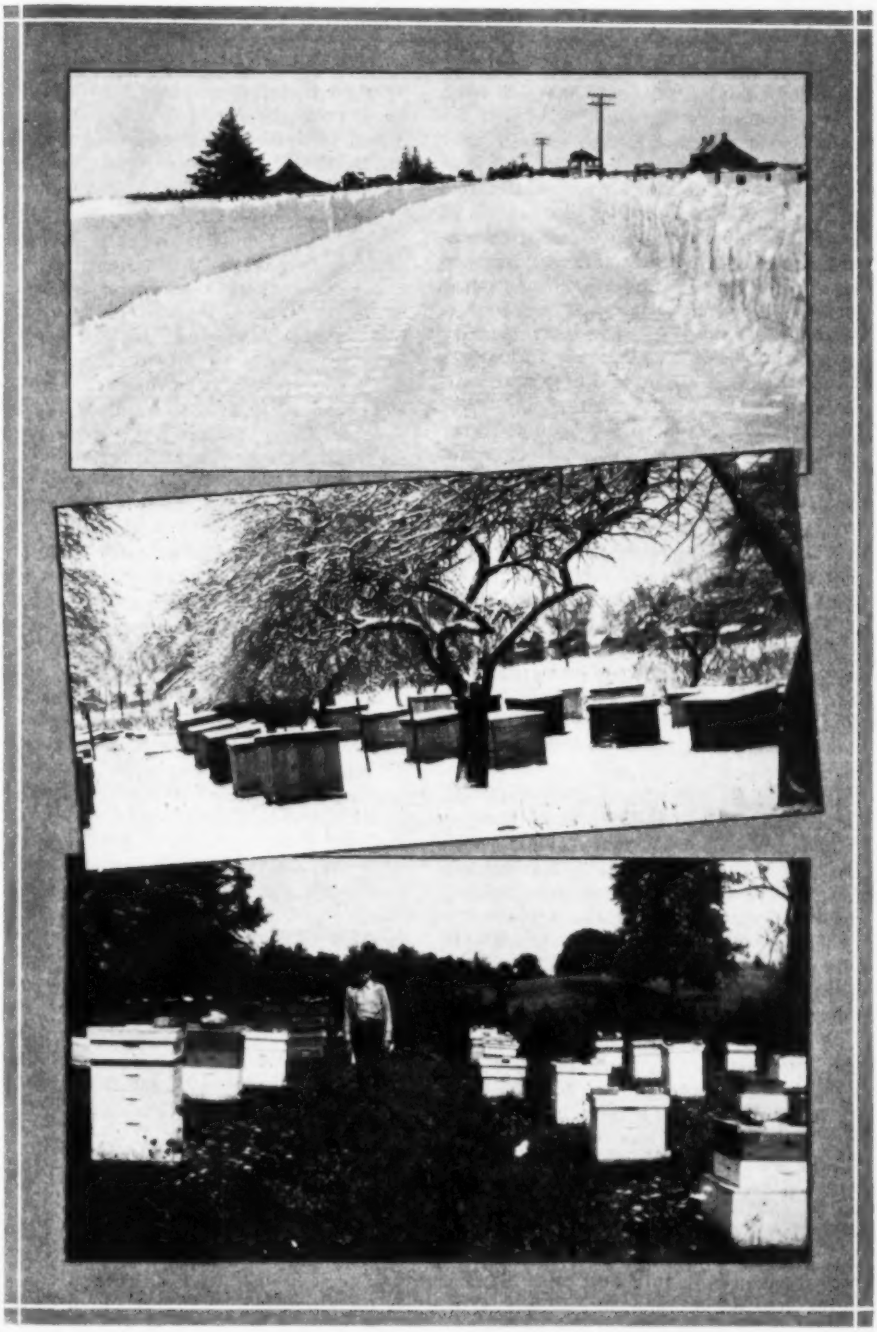
F. B. Paddock, State Apiarist for Iowa, in a series of articles in the Iowa Beekeepers' Bulletin, appears to doubt if there is such a thing as a "best race" of bees for that state, and I expect he would not confine his findings to Iowa alone. Among other things he points out that in the craze for color, Cyprian blood was used to make the so-called Italian bee yellower. Naturally we got some other traits from the Cyprians besides color in the operation. Anyone who has seen many queens imported from Italy, knows that the Italian bee in its purity is far from being golden in color.

Some years ago when European foul brood first appeared in this locality, I was foolish enough to destroy all of our queens, including a number of Carniolans mixed more or less with Italians. Later I learned that a good strain of Carniolans would resist the disease just as well as the Italians. However, I have always regretted the move for we have never had bees just quite as good as those we destroyed at that time. Personally I am inclined to agree with many of the opinions of Prof. Paddock and I feel that if half the attention had been paid to selecting the best strains of Carniolans and possibly some other races, we might have even better bees than we have at present. The Carniolans that we destroyed at the time of the European foul brood scare were unusually hardy and built up more rapidly in the spring than any bees that we own at present. They also placed more honey in the brood-chambers at the close of the honey flow, a very desirable trait when we are all trying to cut down labor and practice short-cuts at every opportunity.

The 1931 Crop of Honey Is Being Cleaned Up and Prices Are Now Advancing.

Two months ago, if I remember correctly, I ventured the opinion that honey might suddenly advance in price, as wheat and some other commodities had done at that time. We can not report anything that might be called spectacular in the way of price advances in honey, yet there is no question but that an advance of no mean proportions has been scored. I notice that honey in chain stores is now selling at two cents a pound more than it did a few weeks ago and that the stocks in many stores are getting very low. In a wholesale way the advance is even more noticeable. Three months ago it was hard to get an offer for car lots of honey, and, when offers were made, they were too low for consideration. Now I am told that there is not a single car lot left in the hands of any one producer and that it is hard to get a car lot in one locality. Increased export demand has caused this change.

It certainly is encouraging to see these signs that seem to indicate that all of last year's crop will be cleaned up before the 1932 crop comes on the market. Local sales have been good indeed, and we finished selling all the honey we had put up in small containers for home trade some weeks ago.—J. L. Byer, Markham, Ont.



Upper—Deep snow in the Northern Peninsula of Michigan forms a warm blanket over the clover during cold weather, then supplies an abundance of moisture when it melts in the spring. Middle—Bees packed in two-colony cases in western Ontario, Canada. Lower—Summer time in a Michigan apiary.

Talks to Beginners

Geo. S. Demuth

Those beginners who already have one or more colonies of bees, have at least one advantage over those who will acquire their colonies in the spring; they are able to study their bees now, observing what they do during the winter and the methods they use to survive cold weather. While they can obtain information from beekeeping literature on wintering and detailed descriptions of what the bees do during cold weather, there is nothing like first-hand observation in beekeeping as well as in other things. On the other hand, those who expect to purchase bees, can wait until spring, thus letting the present owner take the risk of winter loss. By selecting the colonies in the spring, it is possible to pick out those which have wintered best.

In the North, a good time to select colonies is during the month of May since they can be more completely examined at that time. During fruit bloom is an excellent time for this. Further south, in the latitude of the Ohio River, it would be well to select colonies some time in April. In the extreme South, beginners should obtain their colonies either this month or early next, depending upon the locality.

However, if colonies are carefully selected, there is no objection to purchasing established colonies this month even in the North. The risk of winter loss in colonies that are now in good condition is very slight indeed, so if the opportunity presents itself to purchase strong colonies still having 25 to 30 pounds of honey, beginners in the North need not hesitate to do so.

Of the various ways of obtaining the first colonies, the tendency in the North is to purchase package bees shipped from the South, establishing them in hives early enough that they can build up in time for the main honey flow. Best results are obtained from package bees in the northern tier of states and in Canada, since, in localities that far north, the bees usually have sufficient time to build up to profitable strength in time to take advantage of the main honey flow. Since it requires nearly eight weeks for a two-pound or a three-pound package of bees, together with a queen, to build up to the great strength required for profitable storing of surplus honey, it is important that packages be installed at least that length of time prior to the beginning of clover bloom in localities where clover furnishes the nectar for the main honey flow, as it does throughout most of the North.

Further south, in the next tier of states, all conditions must be right if a start is made with package bees, since the main honey flow there occurs earlier. In the South, it is usually better to start with full colonies if they can be purchased locally, especially in localities having an early honey flow. In such localities there would be no time for building up bees purchased in packages. There are some localities in the South, of course, having a later honey flow, where packages could profitably be used in making a start with bees.

Difference in Value of Colonies

Beginners who expect to purchase established colonies should keep in mind that there is a great difference in their value. Some colonies are so weak in number of bees in the spring that they are practically worthless so far as producing a crop of honey this season is concerned. Others may be strong but have a queen that is too old to lay enough eggs to build up the colony strong enough to store surplus honey. Often such queens fail or die of old age during the building-up period and the colony reaches the honey flow in a worthless condition. Some colonies may have a young queen and plenty of bees, but may be short of honey so they will have to be fed a large amount of sugar syrup in order to enable them to rear enough young bees to make a good colony for the honey flow. Some colonies are of scrub stock and are always behind the colonies of better stock in the amount of honey they store during the season.

Bees often offered for sale are in odd-sized hives which do not fit standard equipment. Some are in poorly-made standard sized hives, having crooked combs which can not be taken out for examination, and some are in box hives or gums that must be transferred before they can be made profitable. In some colonies there is a large percentage of drone comb which results in a great horde of drones being reared when the colony should be rearing workers instead. This is because the bees

were permitted to build the comb without the aid of comb foundation.

Many neglected colonies offered at public sales are practically worthless so far as producing a crop of honey this season is concerned, because of one or more of the above-mentioned defects. In addition to this, many have American foul brood, an infectious disease which kills the young bees in the larval or pupal stage of their development. In most such cases, the owner is not aware of the presence of this disease.

Many who keep bees in an indifferent manner are not good judges of the value of their colonies. Therefore, it is not safe to take the advice of those who have not been successful in beekeeping as to the qualities of their colonies. This is one strong argument in favor of starting with package bees.

Selecting Good Colonies

In selecting colonies for purchase during cold weather, the strength can be determined by noticing the size of the clusters. This can be done by removing the covers of the hives and looking down between the combs to see how many spaces the bees occupy. At temperatures near freezing, a good colony should occupy not less than five or six of the spaces between the combs at this season. When the weather is warm enough for the bees to fly, they should occupy most of the brood-chamber. By weighing the hive and comparing its weight with an empty one, it is possible to tell about how much honey is present.

Other things being equal, it is well to choose a parent colony instead of a colony built up from a swarm hived last summer. The so-called old colony is the one having the young queen. Also the old colony is often better supplied with honey than the colony built up from the swarm hived last season.

Ambitious beginners who would like to try their hand at transferring bees, need not hesitate to purchase strong colonies in box hives that are heavy with honey. Sometimes such colonies can be purchased for $1.00 or $2.00, then transferred to a modern hive in the spring and made profitable during the first season. Any beginner who can follow simple directions can transfer bees from box hives or gums into modern hives.

Care of Colonies This Month

In the North, bees require practically no attention during this month, unless they are short of stores. In that event, the directions given in these talks last month should be followed in supplying food to tide the colonies over until they can be properly fed in the spring. In the South, bees will begin to consume a large amount of honey this month, so it becomes necessary to watch closely to see that they do not run short of stores at any time.

The safest kind of spring management is to have 25 or 30 pounds of honey in the hive, either left over from last season or given in an ordinary super placed on top of the brood-chamber or hive proper. Colonies thus provisioned usually need no further attention until they become so strong that there is danger of swarming. Lacking this abundance of stores, the only alternative is to feed. As soon as the bees begin to use honey rapidly in brood rearing, as they will in the South toward the latter part of the month, any colonies that are short of stores should be given at least 15 or 20 pounds of sugar syrup. A good rule is to see that each colony has on hand at least 10 to 15 pounds of honey or its equivalent in sugar syrup during the entire spring building-up period.

How Bees Keep Warm in Winter

Beginners will be interested in studying the way the bees keep warm during the winter. During cold weather they huddle together in a somewhat spherical cluster, the outer layer of bees forming an insulated covering to prevent heat from escaping. In single-walled hives, and even sometimes in double-walled hives when the weather becomes quite cold, it is surprising what a small space a large number of bees will occupy. Not only do they crowd close together in the spaces between the combs but they occupy the vacant cells in that portion of the comb within the cluster. If the temperature goes too low, some of the bees inside the cluster become active and thus generate heat from muscular activity. In doing this, of course, they must consume honey. As long as honey is available and the vitality of the bees is not exhausted, they will keep up the necessary temperature within the cluster even though the temperature outside may be zero or below. During a long cold spell, the bees may consume all of the honey that is within the cluster. Sometimes colonies starve during severe weather with plenty of honey just outside the cluster, not being able to move the cluster to envelope more honey. This does not often occur in well provisioned colonies that are well protected.

Food Department

Malitta D. Fischer

Why Not All Honey?

The past six months indicate that many more beekeepers are interesting themselves in using honey in cookery. Time and time again, beekeepers, or in cases where their wives have become honey enthusiasts, have written, "Why not all honey in recipes—we don't think you use enough honey. Why is it that so many of your cake recipes call for half honey and half sugar?"

Most people enjoy doing what they can do well—that which they are certain will come out to their complete satisfaction and to that of other people also. I know from experience that the housewife will not try to make a second honey cake just because it is a honey cake if the first one made does not turn out as it should. And if she uses all honey, the chances are the first honey cake will not be satisfactory. Curiosity gets the best of cooks as well as other folks and when a cake that contains all honey is not aged as directions request, it is not as good as a sugar cake, and most cooks just can't wait to let it age. Thus the honey is blamed and the homemaker does not, perhaps, ever try to make a honey cake again.

Therefore, it has been found much better to stimulate a beginning interest in homemakers by giving them recipes that are for the most part failure proof and which result in cakes that can be eaten the first day or two. While they are better for the aging, still they are good enough to satisfy the cook when she is not willing to let them age.

Isn't it better to have a homemaker use ¼ of a cup of honey with ¾ of a cup of sugar or ½ cup of honey with ½ cup of sugar and get a result that she is enthusiastic about, than to use all honey and get a heavy cake, not as sweet as a sugar cake and be so dissatisfied that she will not care to try to make that cake a second time? In the case of the combination honey-sugar cake, her enthusiasm will stimulate her to further use of honey recipes and eventually she may develop into one of the "all honey users" for her experience has taught her its peculiarities, and, gradually, an appreciation of the delicious flavor addition which honey provides in combination. Then comes her understanding of the food value of honey and it is a permanent understanding if she has first acquired enthusiasm for honey cookery through the delightfully flavored dishes resulting from its use. In other words we must give the housewife an easy way to use honey—and a way that gives her results so peculiarly attractive and satisfying that she will develop real enthusiasm for its continued use, that desire coming not first from the knowledge of the food or health value of honey but because of the desired result to be obtained. Then the food facts and health facts can be introduced to permanently hold her enthusiasm.

This discussion is brought before my readers entirely with the thought to help them become better honey salesmen and better train the men and women they employ as salesmen. As I rub elbows with homemakers these days, I realize more than ever their problems. I watch the different housekeepers, observe my homemaking friends; and what do I find when it comes to honey cookery? In the beginning, each one of them has a pet honey recipe and she makes this combination over and over again not only for her family but her guests. When I try to analyze her reason for so doing, I find it is because she gets such good results, the combination is attractive, her family likes it and her guests compliment her on the combination.

There's a real satisfaction to be acknowledged by one's family and friends as a fine cook, and, if certain honey recipes help bring about such an acknowledgement, you can be sure the homemaker will continue her interest in honey.

Beekeepers and honey salesmen must accept the housewife or homemaker as she is—you or I can't make her over. If she doesn't appreciate honey, let's not blame her, but ourselves. Let's fit our product and its use into her scheme or program of homemaking. Then we will be good honey salesmen.

Simpler Uses of Honey Emphasized at First

Begin with the simple uses for honey. Never would I try to sell a pail or can of honey on the strength of a type of cake

it would make. Always suggest the easier combination first. Of course, the simplest way to use honey is the drizzling method. There is a basic leaflet known as "New Uses for Our Oldest Sweet," prepared by American Honey Institute which explains simple yet attractive uses for honey through the drizzling method. May I suggest that you ask your homemaker customers to read this leaflet before she uses your honey and then she will have a definite idea of adapting honey to her cookery.

Some of the homemakers to whom I have demonstrated, have written that they had never used honey before, but are now keeping honey on hand for dressing fruit salads. Finely flavored honey lightly drizzled over a nest of fruit in curls of lettuce is indeed as fine a salad as anyone would wish. Women find honey much easier to use than other dressings which they have either been preparing or purchasing, and it is a combination everyone likes. In one case a woman who feeds five in her family reports the use of a sixty-pound can of honey in seven months just on fruit salads and fruit dishes for breakfast. She uses the honey in no baking or other ways but just on the fresh fruit salads and breakast fruit services. Her enthusiasm is growing in spite of the fact that in the beginning she complained about the stickiness of honey, she didn't like it for it was too sweet and it granulated, and it was messy, and what not.

Stickiness of Honey Has Its Advantages

That brings me up to the discussion of the stickiness of honey. How many honey salesmen use the stickiness of honey as a good selling point? When a homemaker at the end of a demonstration comes up to look over the honey food prepared during the demonstration and says, "Well honey is so sticky, it's really terrible stuff to work with," I agree with her in part, but also point out some advantages of this quality.

Of course, it is sticky, but personally I am glad it is. I wouldn't have it any other way. You know it's stickiness is really an asset for it helps hold ingredients together. I am glad it is a liquid and not a dry substance for it blends more readily with many combinations. As in the case of fruit salad, I do not have to stir my fruit to dissolve sugar crystals, but just arrange it on a cluster of lettuce and then lightly drizzle over the honey. Since it is a liquid, it penetrates the fruit tissues without stirring, and all the fruit is flavored without further agitation. In the case of a rolled sandwich, my honey fillings hold the rolls together. That's an advantage, for you know how difficult it is sometimes to make rolled sandwiches hold together.

And I am glad honey granulates for I have some pet combinations that require just that type of ingredient. You know I like to put liquid honey in the electric refrigerator to make it granulate. Then I use that for cake icing by adding chopped nuts and cocoanut, warming it just enough so it will spread easily. It's a most delightful icing. I find I can measure granulated honey for cakes and cookies just about as well as the liquid honey. I like to mix the granulated honey with butter and use it for a hard sauce for fruit cake, steamed puddings, or hot gingerbread.

Then another homemaker wants to know how one can measure honey—always some of it adheres to the measuring cup or spoon. Beekeepers may find it helpful to tell housewives that if they will measure the fat in the measuring cup first, then measure the honey without washing the measuring cup, the honey will come out more easily since the fat has formed a light surface of fat globules around the inner surface of the cup so the honey can be brought out to every last drop.

Always use one of the rubber dish scrapers for taking out fat or honey or batter mixtures from a mixing bowl or measuring cup. I hope that beekeepers know what I mean by rubber dish scrapers. You get them at the ten-cent store for 10c each. Go to the hardware counter and get one if you don't have one in your kitchen, for they are absolutely the finest tool in removing every last drop of honey from measuring spoon or mixing bowl that I have yet found. I have often wondered why some beekeepers who market honey extensively do not buy these rubber spatulas or scrapers in wholesale lots and give them with a ten-pound pail of honey. It would be a practical combination.

The stickiness of honey is not a difficulty; homemakers appreciate this particular quality of honey more and more as they use it. And the fact that it granulates is not a serious obstacle if the homemaker understands what to do with it after it granulates and the fact that there are uses for it in the granulated form.

Limitations of Honey in Making Candy

Many inquiries are coming from confectioners these days concerning the use of honey in candy. It is impossible to use 100 per cent honey in cooked candy formulas and have much of the original honey flavor left. When one cooks honey many difficulties arise. One of the members of the U. S. Bureau of Chemistry discussed this phase of our problem at length with me about two months ago. He was very frank to state that, due to the low carmelization point of honey, he could see very litle advantage of incorporating large amounts in commercial batches of candy. But we do not need to worry about this. All confectioners use a little honey but if they didn't use any, we could still sell all of our crop and more, if the homemakers could be reached with real educational material. Remember, there are a number of very simple confections which incorporate honey into the mixture without cooking. These confections are good enough to satisfy anyone's sweet tooth, even though they are very simple combinations. Suggest these confections to homemakers and I am sure they will enjoy making them because of the ease with which they are made and because of the fine flavor they have.

Many homemakers still belong to the guesswork class of cooks. This method will not work with honey. It does not always work with other foods but, particularly with honey in baked goods, must your measurements be exact. Training and directions are very valuable but sometimes good judgment must also be brought into play.

Importance of Correct Temperatures in Honey Cookery

Perhaps the greatest difficulty met with in cooking and baking with honey concerns temperatures. It is the experience of many that more good foods are spoiled through too high a temperature than through too low a temperature. The amateur is likely to scorch or bake foods too hard. A scorched spot or surface will affect the flavor of the entire mass and especially of a food containing flour. I find this is very true with honey combinations. For my apple up-side-down cake, I am always very careful after the honey (in which the apple rings are placed) starts to bubble to turn the flame just as low as I can and let simmer. I have watched other women make the same apple rings only to find that their flame was high and in a very short time the apple rings were too hard and the honey carmelized beyond further use. I can save the liquid from the apple rings and use it over and over again and of course always using it for the flavoring and glazing syrup in the bottom of the skillet before pouring over the up-side-down cake batter.

The same thing applies to the honeyed fruit strips, orange or grapefruit. These fruit strips are ruined time after time because they are not allowed to simmer in the honey over the lowest possible flame but instead are boiled briskly.

Not many additional pieces of equipment are necessary for honey cookery, but it is important that any homemaker have enough of the right kind of cooking equipment but not too much or too little. Plenty of measuring cups, measuring spoons and at least two rubber spatulas or rubber dish scrapers would be the only additional tools I might suggest. I do like the honey drizzler type of jar and always have it filled with warm honey so that it can readily be dispensed into the measuring cup or spoon.

In order to take the guesswork out of honey cookery or honey selling, one must be reasonably well posted. It is expensive to learn through our mistakes. Better far to know what is right and to do it. That brings us to the point that it is easier for any of us to do things after we have been shown how to do them than it is through reading about them. More beekeepers need include in their marketing methods some plan to show homemakers how to use honey. There should be more honey demonstrations. These may come through your local cooking-school teachers such as home service directors for gas and electric light companies, newspaper cooking schools or be given by your wives. But we must have more honey demonstrations. Homemakers want to be shown. And in showing them, we must select the most attractive and simpler combinations. No one objects to making honey butter and yet I wonder how many beekeepers have told their customers how to make honey butter.

There is a honey gingerbread that I have never known to fail. And who doesn't like good gingerbread? Are you suggesting honey gingerbread these days and giving the formula to your homemakers? I know they will like this combination.

Gleaned by Asking

Geo. S. Demuth

Installing Package Bees on Foundation

Question.—Can three-pound packages of bees together with a queen be installed on frames of foundation and built up in time for the honey flow?—Ed. Vanmeter, Iowa.

Answer.—Installing package bees on frames of foundation only is somewhat more difficult than starting them with combs. However, it can be done. There is more danger of swarming out than when given combs. The best arrangement for installing bees is to give them combs containing a considerable amount of honey and pollen. If not enough combs are available, one or two for each package, together with frames of foundation, will do very well. Of course, it is necessary to feed the package bees when installed on frames of foundation unless nectar is available from early spring flowers.

Hubam as a Honey Plant

Question.—I am anxious to know something about Hubam (annual sweet clover) as a honey plant. Is it a good nectar producer?—C. F. Battels, Iowa.

Answer.—Yes. Hubam is an excellent honey plant. So far as is known, it yields as much nectar as does the biennial white sweet clover or the biennial yellow sweet clover. The advantage it has over the others is that it blooms the first season instead of the second. On account of its rapid growth during the first season, it is surprising that it is not more widely used as an emergency forage crop.

Cause of Moldy Combs in Spring

Question.—On page 712 in the November, 1931, issue of Gleanings in Bee Culture, Mr. Leininger says that wintering in two stories resulted in moldy combs and wet bottom-boards in his apiary. What causes this?—Aldin H. Bacon, Ohio.

Answer.—Moldy combs are the result of condensation of moisture within the hive. This moisture is chiefly from the breath of the bees. Moisture is given off by the bees in proportion to the amount of honey they consume. When the air within the hive is heavily charged with moisture, some of it condenses when it comes in contact with cold surfaces. Thus, if the temperature of the combs or the walls of the hive is below the dew point, there is condensation of moisture on them. In single-walled hives there is usually more or less condensation of moisture during winter, since the walls of the hive become chilled below the dew point. This can usually be prevented by packing except in extremely cold weather. A two-story hive would require more packing to keep the inner walls above the dew point than a single-story hive. A small colony in a big hive would be much more liable to become wet and have moldy combs than a large colony in a small hive. The quality of the food, the period of confinement and the age of the bees would also have an influence. With poor stores and long confinement, the bees would become more active and, therefore, give off more moisture. Old bees dying off rapidly would be inclined to start brood rearing which would greatly increase the consumption of honey and therefore the amount of moisture given off. The amount of ventilation also greatly influences the condensation of moisture within the hive. Hives with large entrances or upward ventilation remain dry because the moisture (together with much of the heat generated by the bees) is carried out of the hive by ventilation. Thus, single-walled hives would require a large entrance or upward ventilation to keep the combs dry while a well-packed hive, under the same conditions, would remain dry with a small entrance and no upward ventilation.

Proper Conditions for Storing Honey

Question.—What kind of storage place is best for comb honey to keep it until marketed?—F. B. Howard, Kansas.

Answer.—Comb honey should be stored in a warm dry atmosphere. By keeping it warm, there is less danger of granulation, and by keeping it dry, it does not absorb moisture from the air through the cappings. These rules for storing comb honey do not hold for storing extracted honey in 60-pound cans. Extracted honey that is granulated should be stored in a cold place where the temperature is fairly constant. A low temperature will prevent or retard fermentation and a constant temperature will prevent the condensation of moisture on the cans. If the cans of honey are stored in an unheated building where the temperature fluctuates with the temperature outside, moisture will condense on the tin whenever the weather turns warm, causing the cans to rust.

Feeding During Cool Weather

Question.—Is the Boardman entrance feeder suitable for feeding bees in the spring?—H. H. Elliott, Indiana.

Answer.—Yes. It can be used to feed the bees at any time that it is warm enough for them to come down to the entrance to take the feed. If the weather is too cold for this, the feeder jar should be

placed directly on top of the frames in contact with the bees instead of at the entrance. This can be done by placing the feeder over the hole in the inner cover or by cutting a hole in a piece of building paper the right size to accommodate the feeder, then covering the top of the hive with the building paper. An upper story is usually set over the hive to protect the feeder when it is used in this way.

Arresting Fermentation in Honey

Question.—I have some honey that is five years old. It is in a crystallized state and is stored in 60-lb. cans. Near the top, the honey is soft and mushy and has a fermented taste, but it is more solid further down. Can this honey be heated to prevent further deterioration, or will it keep well if left as it is? Would storing it in a warm room (about 85°) prevent further deterioration?—Melford Olson, Minnesota.

Answer.—You can stop further fermentation by heating the honey to about 140° F. This will destroy most of the ferments and thus stop further deterioration. However, heating the honey in such large containers is liable to darken it considerably on account of the large mass cooling slowly. By storing it in a cold place now, fermentation will make but little progress during the winter. In the spring, when the weather warms up, fermentation would again continue. Storing it in a warm room would make matters worse since it would increase fermentation.

Color of Hybrid Bees

Question.—Are workers and queens reared from hybrid queens liable to vary in color, some being light and some dark?—Paul A. Wells, Ohio.

Answer.—Yes. Both workers and queens reared from hybrid or mismated mothers vary greatly in color. Some may have the markings of pure Italians, while others may be almost black, and many may have one or two yellow bands.

Name Built in Comb Honey

Question.—How can I cause the bees to leave my name on a comb of honey for exhibition purposes?—R. Garbith, Manitoba.

Answer.—You can do this by cutting out the letters in a thin board, then tacking this board to another and placing it alongside a frame in which bees are storing honey. As the cells are elongated, those opposite the cut-out letters will be elongated, thus making the letters on the comb. Another way would be to glue wooden letters (which can be had at ten-cent stores) to a thin board used as a separator. In this case the letters would be formed by depressions in the comb instead of by elongated cells.

Queen Leaves Hive to Die

Question.—I found a queen on the alighting board with only three bees paying attention to her. On opening the hive later, I found that the bees had started queen cells. Why did the queen leave? Would it have done any good to put her back into the hive?—Jas. Burlingame, Michigan.

Answer.—The queen was probably leaving the hive to die, thus following the instinct so strong in worker bees to leave the hive as death approaches. It would have done no good to put the queen back into the hive for she would immediately have left again or died within the hive.

Neighbor Objects to Bees

Question.—I have two colonies of bees located 65 feet from the line of an adjoining lot. The man who owns the adjoining land claims that my bees are a nuisance and is endeavoring to have me move them. Other neighbors are satisfied that my bees are not a nuisance. I have watched the matter closely and feel that they cause no disturbance. Can this man compel me to move the bees?—R. J. Richie, New York.

Answer.—The courts have held repeatedly that bees are not a nuisance in themselves, although they may become a nuisance by negligence or improper management. You have a right to keep bees on your premises so long as they are not a nuisance to your neighbors. Most complaints of this kind are a result of some personal grudge against the beekeeper, not because the bees are an annoyance. It will be well to keep the bees in some sort of enclosure so that the hives are not conspicuous. Often bees can be kept in this manner for years without neighbors knowing anything about them. Of course, when bees are kept close to a neighbor's property, every effort should be made to prevent them from causing any trouble in the neighborhood. They should be handled so that robbing is never started and only gentle bees should be kept.

Avoiding Foam in Bottled Honey

Question.—I am wondering if I can obtain a little help from you in avoiding foam on honey. I do not refer to air bubbles caused by honey falling into the bottle from the faucet of the filling tank. I refer to that viscous substance which rises to the surface of bottled honey after filling, or remains in suspension causing honey to appear cloudy.—A. G. Van Ronzelen, Missouri.

Answer.—Sometimes it is very difficult to clear up honey that has a cloudy appearance caused by minute bubbles of gas from initial stages of fermentation. Such honey may defy ordinary clarifying methods. One plan is to heat the honey quickly then cool it quickly, repeating the process. When honey is heated, some of the small bubbles are expelled, thus clarifying the honey. However, each time the honey is heated it is darkened slightly, especially if it remains heated for some time. For this reason, quick cooling is just as necessary as quick heating. If you use a hot water vat for liquefying the

honey, you could arrange to draw off the hot water and turn in cold water to cool the honey quickly. After the honey has cooled, the cold water can be run out and the hot water turned in again to repeat the process.

Sowing Sweet Clover Seed

Question.—I sowed unhulled sweet clover seed in March, but not a spear of it came up. Alfalfa planted in mid-summer on the same ground came up well. Was this because the sweet clover seed was not inoculated? Can I inoculate unhulled or unscarified sweet clover seed?—W. R. German, New York.

Answer.—The failure of the unhulled sweet clover seed to grow was probably due to being sown too late. Unhulled sweet clover seed should be sown in December, January or February in the North. Freezing and thawing then permits moisture to penetrate the hard seed coat. Unhulled or unscarified sweet clover seed can be inoculated in the same manner that hulled and scarified seed is inoculated.

Dark Combs Affect Quality of Honey

Question.—Do combs that have had brood reared in them affect honey that is stored in them afterward as to flavor or palatability?—Byron A. Yount, Missouri.

Answer.—Combs that have had brood reared in them can be used as extracting combs without seriously affecting the flavor or palatability of the honey extracted from them. However, honey extracted from combs that have never had brood reared in them is usually just a little finer in quality. In producing honey for exhibition purposes, it is advisable to extract the honey from combs that have never had brood reared in them. In fact, by a little care, the brood combs can be kept out of extracting supers entirely, using only those which have never had brood reared in them, thus producing just a little finer quality of honey.

Cause of Fermentation in Honey

Question.—What caused honey that was capped and well ripened to sour in the combs?—J. C. Schetler, Kentucky.

Answer.—In the northeastern portion of the United States, there was an unusual amount of trouble from honey souring last season. Even honey that was apparently well ripened was not immune to this trouble. In some cases a large percentage of the crop of comb honey produced in the northeast portion of the United States last year was rendered unfit for market by fermentation. Whether this was caused by more ferments in the nectar or by the high humidity prevailing in this region last summer, is not known. Evidently the bees had great difficulty in evaporating the excess water from the nectar on account of the humid atmosphere. Scientists tell us that the yeasts which cause fermentation can live and grow in honey that is well ripened provided they get a start while the honey is still thin and watery.

Eradicating the Brood Diseases

Question.—How can the brood diseases be stamped out where bees are not assessed to help pay for inspection?—W. J. Hahn, Nebraska.

Answer.—Many states are supporting inspection work out of general funds. In states where adequate funds for inspection are not available, an excellent way to eradicate the brood diseases from a neighborhood is through local beekeepers' associations. These are usually county associations in which the beekeepers get together for the purpose of eradicating the disease. If each member of the association can be induced to act as a vigilant committee of one, whose business it is to find any disease that may exist in his locality and to destroy it promptly, it is possible to eradicate the disease. In many cases this is the most sensible way of attacking the problem. Even in states where there is good inspection service, beekeepers can greatly aid the inspectors by forming county associations having for their major purpose complete eradication of disease, and attacking the problem with determination to clean up the county and keep it clean. This has been done in many counties, and in some cases in larger areas.

Restoring Granulated Comb Honey

Question.—Is there any way to bring back comb honey that has granulated?—H. C. Anderson, West Virginia.

Answer.—There is no practical way of liquefying comb honey that has granulated without melting the combs. Granulated comb honey has been at least partly liquefied by keeping it in a hot room for a long period of time, but results have not been entirely satisfactory and it is an expensive process. In some cases the best disposition of granulated comb honey is to run it through a capping melter to liquefy the honey and separate it from the wax, although great care is necessary to prevent scorching the honey. If granulated comb honey is sold as such, the buyer should be told that it is granulated and the dealer should explain this to his customers. To sell it as first-class comb honey is a ruinous practice, although the honey may be just as palatable and nutritious as any. There are some markets that will accept granulated comb honey at a reduced price when both dealer and consumer know that it is granulated.

Just News

Editors

As announced on this page last month the Southern Beekeeping Conference will be held at St. Petersburg, Florida, on February 2 and 3.

The beekeeping division of the Department of Agriculture, Regina, Sask., Canada, is giving a free short course in beekeeping, February 22, 23 and 24.

Mr. Joseph Ruddy, founder and president of the Ruddy Manufacturing Co., Brantford, Ontario, Canada, died in late November. The Ruddy Company is the largest manufacturer of bee supplies in Canada.

Prof. F. B. Paddock will give a series of 12 radio talks on bees and honey over Radio Station WOI. This series will begin Monday, March 14, at 12 o'clock noon and will occur on each succeeding Monday for 12 weeks.

The Kansas State College of Agriculture has abandoned the beekeepers' program this year which has usually been held during Farm and Home Week. This action was taken because of present economic conditions.

Mr. W. S. Pender, editor of the Australasian Beekeeper, passed away on October 10, from pneumonia. Mr. Pender and his brother crossed the United States on their way to England in 1929, at which time they visited this office.

The California Fruit Growers' Exchange makes frequent mention of honey in connection with its use with citrus fruits in bulletins and circular letters which the Exchange sends out to writers on food. This gives honey a lot of free advertising.

There is considerable interest manifested, especially in some of the southern states, regarding some new varieties of Lespedeza as a forage crop and soil improver. An article in the February issue of The Country Gentleman sounds high praises for this legume. Just how valuable it is as a nectar-bearing plant in this country has not been determined, but no doubt definite information on this subject will be available within a few years.

Mr. Geo. H. Rea, well-known beekeeper and extension worker in beekeeping, has been appointed extension specialist in beekeeping for the state of New York. His headquarters will be at Cornell University, Ithaca, N. Y. Thus Mr. Rea goes back to his old post in New York from which he resigned several years ago in order to recuperate in health.

Mr. C. P. Dadant, veteran editor of the American Bee Journal, was recently presented with a gold medal in honor of his eightieth birthday by The Bee Kingdom League, an international organization with headquarters at Cairo, Egypt. The presentation was made at the meeting of the Wisconsin Beekeepers' Association by Prof. H. F. Wilson. Since Mr. Dadant could not be present in person, the medal was presented to his son, Maurice.

Results of studies of the response of bees to ultra-violet light by Lloyd M. Bertholf, Bureau of Entomology, Washington, D. C., are set forth in an interesting article in the Journal of Agricultural Research, Vol. 43, No. 8, pages 703-713. Mr. Bertholf discovered that the bees respond to certain wave lengths in the ultra-violet spectrum to an extent about four and one-half times as great as the maximum in the so-called visible spectrum. In a previous investigation, Dr. Bertholf found the maximum response in the visible spectrum to be in the yellow-green wave length so the bees have two maxima, one in the visible spectrum and one in the ultra-violet spectrum.

The Extension Division of the University of Texas has published a hand book entitled "Activities of the Honeybees," which is being used by pupils in the rural schools of that state. The course lasts six weeks. At the end of the course, the pupil has his own text book of beekeeping written largely by himself. Mr. H. B. Parks, Division of Apiculture, Texas Agricultural Experiment Station, supplied the material for the book and the design for an observation hive. The course is said to be quite popular among the pupils throughout the state. It not only provides excellent subject matter for the schools, but also stimulates an interest in honey which is already being reflected in an increased demand for honey.

Clouds and Sunshine

Anthony Darke was his name. Rarely had misfortune dealt more severely with a mortal man, nor was nature kind to him. His grizzled head showed the scars of many encounters with men and the elements.

Anthony was a good natured, dyed-in-the-wool bachelor, short in stature and middle aged. He was uneducated but self-opinonated; shiftless but eager to try new things. He was fond of fishing and hunting, none too clean in body and speech, ever learning but never coming to a knowledge of the truth.

His earthly belongings consisted of a cow, a dog, a few chickens, an old shotgun, a rifle, a small garden on his ten-acre farm, an old shack in which he lived, and last but not least, thirty hives of bees.

Anthony's domain was tucked snugly away in the side of a wooded ravine, on a by-road some distance from the main highway. Old Plum Creek to the south, almost touching Anthony's garden fence, flowed along peacefully, except when under the influence of an early spring freshet. It was only the previous spring that the swollen waters of old Plum Creek suddenly encroached beyond the bounds of Anthony's bee yard, lapped up five of his hives and carried them to the little town of Struthers, a mile below. This unusual event naturally had its effect upon Anthony. Before the flood, his hives were scattered over the lot, some of them close to the creek. Afterwards, they were segregated in one spot, close to the chicken yard, near his shack.

This shack had one room, one door and one window. Directly above the door, facing the east, hung the riffle and shotgun. In one corner a small table held a kerosene lamp, a few eating utensils and some old bee journals and papers. In another corner was an old-fashioned cookstove and some crude cooking utensils. A rickety old cot occupied another corner and the remaining space was devoted to the storage of sundry articles such as rat traps, fishing tackle, and Anthony's limited wardrobe. The one window faced the south, through which Anthony could sit and watch his bees, chickens, and Old Plum Creek. This one room served as a bedroom, kitchen, dining room, drawing room and reception room. A calendar and one enlarged photograph of Anthony Darke's family group, taken many years ago, were the only mural decorations except for some skins of various animals stretched out to dry.

While the misfortunes of life weighed heavily upon Anthony, he was as optimistic as a person could well be in his environment. Next to hunting and fishing, he loved his bees. His were not the most gentle strain of pure Italians. Color in bees meant little to Anthony, nor were his hives fashioned after the most modern type. In fact, it could scarcely be said that his hives conformed with any modern view of what hives should be. They furnished some protection and what more could hives do for bees? Ample ventilation in winter as well as in summer was an apparent necessity.

It had taken Anthony many years to accumulate his apiary of thirty hives. Some were purchased at public sales, some were colonies taken from bee trees, and walls of buildings, and others were run-away swarms which were put into boxes, barrels, or anything that had the semblance of a bee hive. There were only five hives in his apiary that contained movable frames and they were purchased from a beekeeper who was moving away.

So it is little wonder that Anthony's apiary consisted of a mixture of makes and types of hives, not to mention the bees, which varied from black to very yellow Italians. It seemed to matter little what kind of hives or bees he kept, so long as he secured enough honey for table use and a little to sell.

Anthony had built a small lean-to on the north side of his shack, in which to keep his honey extractor, supers and other beekeeping appliances. One day in late fall he was tacking some waterproof paper over the roof of the lean-to, to make it leak-proof. As he hammered away on the roof he failed to notice the approach of a neighbor beekeeper, a young man, Mr. James Bright. Mr. Bright lived on the outskirts of the nearby town, where he had an apiary of 75 colonies in modern, movable frame hives. He was a young, married man, with high school education, quite aggressive and eager to learn. He had beekeeping ability and was ready to share his beekeeping knowledge with others.

A. N. Onymous.

(To be continued.)

Sell and Buy Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Copy should be in the 15th of month preceding.

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"We do not guarantee the reliability of honey sellers, although we require strict references from them."—From Our Guarantee and Advertising Conditions.

WHITE clover honey, 6½c. Sturdevant, St. Paul, Nebr.

CLOVER honey in new 60-lb. cans. Wells B. Crane, McComb, Ohio.

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WHITE clover extracted honey. Write for prices and sample. Kalona Honey Co., Kalona, Iowa.

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FOR SALE—Extra choice white clover honey, case or carload. Also amber. David Running, Filion, Mich.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

FINE clover honey, extracted, pound or ton. Write amount wanted and get prices. L. G. Gartner, Rowan, Iowa.

FOR SALE—Amber clover honey in sixties, 6c; one or more cases. Sample, 15c. W. J. Manley, Sandusky, Mich.

OHIO'S finest comb and extracted white clover honey. Prices on request. Sample, 15c. Geo. Morrison, Cloverdale, Ohio.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Fancy clover honey, 60-lb. cans, by case, 7c; 5-lb. pails, 12 pails to case, $6.50. A. A. French & Son, Theresa, N. Y.

HARRIS QUALITY white clover extracted in new sixties. One case or a car. Depression prices. J. N. Harris, St. Louis, Mich.

FOR SALE—Three cars white and light amber in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Sons, Hamilton, Ill.

STOLLER'S excellent quality clover honey, comb and extracted, unexcelled. The Stoller Apiaries, Latty, Ohio.

CLOVER honey, $8.40 case; amber, $7.20. Edward Klein, Gurnee, Ill.

CHOICE clover honey at 6c. Sample, 15c. W. A. Stith, Troy, R. 4, Ohio.

CLOVER extracted honey, case or carload. Roy Littlefield, Exira, Iowa.

FOR SALE—Clover and light amber honey. Leland Farnsworth, Davison, Mich.

CARLOAD or case white extracted sweet clover alfalfa, Geo. Seastream, Moorhead, Minn.

CHOICE clover and buckwheat honey in 5, 10 and 60-lb. tins. Harry T. Gable, Romulus, N. Y.

FANCY white comb honey, in eight-case lots, $3.50 per case. N. B. Querin & Son, Bellevue, O.

CHOICE clover and buckwheat honey in 60's and 5's. C. F. Grauer & Son, Route 3, Saginaw, Mich.

FOR SALE—Amber extracted honey in new 60-lb. cans, 5c per lb. Geo. M. Sowarby, Cato, N. Y.

Comb honey, white sweet clover, $2.50 case, 24 sections. Prepaid. Marsalek Apiaries, Cornlea, Nebr.

BUCKWHEAT honey. Fine quality extracted, $5.50 per case of 120 lbs. Gelser Bros., Dalton, N. Y.

CLOVER honey, fancy comb and water white extracted, case or ton lots. Write Morehead Apiaries, Convoy, Ohio.

COMB honey, finest obtainable, fancy and No. 1, strictly pure clover, white stock. Write Irvin A. Stoller, Latty, Ohio.

HOWDY'S HONEY—Best quality clover extracted at reduced price. Howard Potter, Jr., Beekeeper, Ithaca, Mich.

WHITE clover honey, extracted and chunk. Prices on request. 1-lb. sample, 15c. F. W. Summerfield, Grand Rapids, Ohio.

SEVERAL tons very fine white clover extracted honey in new sixties. Also mild amber. Ross B. Scott, La Grange, Ind.

MICHIGAN'S finest clover honey in 60-lb. cans. Sample, 15c. C. E. Glover, 1502 Stockbridge Ave., Kalamazoo, Mich.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey & Wax Company, Inc., 265 Greenwich St., New York City.

FOR SALE—5-lb. pails choice clover honey, 40c each. 36 pails to case. Also 60s, off color, 6c. Wm. G. Blake, Port Huron, Mich.

FANCY white comb, $3.25; No. 1, $2.75; No. 2 white amber or buckwheat, $2.25; wrapped, 25c extra. Clover extracted, 7c; amber, 6c; buckwheat, 6c. C. B. Howard, Geneva, N. Y.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, 124 Williams St., Syracuse, N. Y.

FOR SALE—One-half ton No. 1 white comb honey; one-fourth ton No. 1 buckwheat honey; one ton No. 1 white extracted; one ton light amber extracted; one-half ton dark extracted. H. L. Case, 156 West Ave., Canandaigua, N. Y.

WHITE clover extracted. Jessup Honey Farms, Rt. K, Carmel, Ind.

FOR SALE—White clover honey in 60-lb. cans, 7c per lb. Jos. H. Hoehn, Ottoville, Ohio.

EXCELLENT quality clover extracted and comb honey. Albert H. Clagg, Bellefontaine, O.

DANDY clover comb, $3.50; 11 oz., $2.75. Extracted, 6c. Walter Spink, Varysburg, N. Y.

50 CASES No. 1 clover comb honey, $2.65 per case. Catalpa Grove Apiary, Galveston, Ind.

FOR SALE—Very good quality white clover honey in 60-lb. cans. Wilbur Green, LaGrange, Ind.

TON of amber honey in sixties priced low; clover in glass; Lewis 2-frame extractor like new. H. Ostrander, Mellenville, N. Y.

EXTRACTED clover honey in 60-lb. new containers. Graded. Write for quotation. Sample, 10c. M. Larson & Son, Box 144, Gardner, Ill.

WHITE clover honey, put up two 60-lb. cans, 2 cans per case. State quantity wanted and I will quote price. Leonard S. Griggs, 711 Avon St., Flint, Mich.

1930 crop clover basswood honey. Also 1931 crop amber fall honey, new 60-lb. cans. Write for prices. Sample, 10c. Meyer Toom, Route 4, Knoxville, Iowa.

COMB HONEY—Fancy white, $3.25; No. 1, $2.75; No. 2 white, amber or buckwheat, $2.25 per case; clover extracted, 7c; buckwheat, 6c. Edge Water Apiaries, Phelps, N. Y.

NEW CROP SHALLOW FRAME COMB HONEY, also section honey, nice white stock, securely packed, available for shipment now. Colorado Honey Producers' Assn., Denver, Colo.

BY MAIL—5-pound pail orange blossom honey, 75c. Also send enough to cover postage. Ask your postmaster amount necessary. Mailing weight, 6 lbs. A. W. Nations, Donna, Texas.

CLOVER and buckwheat extracted. Buckwheat in comb and extra nice goldenrod comb honey. Northern-raised package bees. H. E. Crowther, Jefferson, Ohio.

HONEY FOR SALE—Finest Nebraska sweet clover honey in new sixties. One to five case lots, 6½c; ton lots, 6c per pound, f. o. b. St. Edward, Nebr. Jensen's Apiaries, Crawford, Miss.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Colo.

FANCY WHITE comb honey, $3.00; No. 1 white, $2.75; heavy light amber and fancy buckwheat, $2.25. White and buckwheat extracted in any size package. Carlton D. Howard, 50 Lafayette Ave., Geneva, N. Y.

FOR SALE—No. 1 clover comb, $3.50 per case; No. 2, $2.50; buckwheat and fall comb, No. 1, $2.50; No. 2, $2.00 per case. On a 24-case shipment, 5% discount; 48 cases, 10% discount. For other prices, write. H. G. Quirin, Bellevue, Ohio.

HONEY—We sell the best comb in carriers of eight cases each—extracted basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-230 W. Huron St., Chicago, Ill.

WHEN selling "Riverside" (practically pure clover) honey the only comeback you'll get will be another order. Sample free if you mean business. 10-lb. pails, $0.90; 5-lb. pails, $.47½ each; 60 lbs. or more. Labeled if desired. Crystallized or liquefied. Riverside Apiary, Berne, Ind.

ARE you listening in? O. K. $1.50 per gallon again buys our 100 per cent pure maple syrup in 5-gallon tins, only one or two per case, delivered free to you 1000 mi. freight paid. Lower prices on both comb and extract honey, any quantity, any size container you may wish. Don't be bashful or hesitate, but tell us now before Andy gets all your dough. Live while you live, but let us live also. Write Griswold Honey Co., Madison, Ohio, U S.. A.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—All our honey-producing friends should take note of the following from the "Guarantee and Advertising Conditions" of Gleanings in Bee Culture: "We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only or on C. O. D. terms except when the buyer has thoroughly established his credit with the sellers."

WANTED—Extracted and chunk honey; name lowest cash price. Roose Brothers, Sac City, Iowa.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—A car or less quantity of white honey, in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, Birmingham, Mich.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

WANTED—Address of established honey producers having had success in securing the small one-fourth size individual honey combs and could undertake large quantity production in their own yards. Address Comb Honey, Room 506, 6 East Lake St., Chicago.

FOR SALE

OLD bee books for sale. John F. Hawkins, Box 203, Chester, Pa.

AUTOMATIC swarm trapper; practical, efficient. Literature free. Vikla Manufacturing Co., Lonsdale, Minnesota.

COMB FOUNDATION—Note these low prices on 20-lb. lots; medium brood, regular or non-sagging, 46c lb.; thin section, 53c. Wax worked at lowest prices. E. S. Robinson, Mayville, N. Y.

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Assoc., Denver, Colo.

FOR SALE—Honey house, electrically equipped, locations and equipment for 500 colonies, at Frankenmuth, Mich. No combs or bees. Have had some American. J. James Main, 149 Clinton Ave., Kingston, N. Y.

FOR SALE — Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

FOR SALE—Near Albion, Neb., equipment for 500 two-story colonies. Part bees being wintered. Balance will be supplied from Mississippi. Four or five frames of brood for each colony about May 1. Everything standard full depth, ten-frame. Mostly new last year. Buyer can equip with own choice of supers and go right ahead producing honey. Guaranteed no disease. Jensen's Apiaries, Crawford, Miss.

BEE SUPPLY SPECIALTIES

METAL EYELETS in your frames will stop the WIRE SAG which is responsible for most SAGGED COMBS. METAL EYELETS, per 1000, 60c. Handy tool for inserting eyelets, 25c, postage, 3c per 1000. Superior Honey Co., Ogden, Utah.

BEES AND QUEENS FOR SALE

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease, or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or, it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

WRITE for prices on package bees and queens. Jasper Knight, Hayneville, Ala.

TESTED QUEENS, 75c EACH. Send queens anywhere. Order now. D. W. Howell, Shellman, Georgia.

PALMETTO Quality Queens. Watch March Gleanings for 1932 low prices. C. G. Ellison, Belton, S. C.

100 10-frame 2-story colonies bees. $450.00 takes them all on yard as they stand. Guaranteed free from disease. W. A. Wiley, Westpoint, Miss.

WRITE for new low prices on Mountain Caucasian bees and queens; also booklet on description and managment. Bolling Bee Co., Bolling, Ala.

FOR SALE—TWIN-DEL QUALITY QUEENS and ROOT QUALITY BEEKEEPERS' SUPPLIES. Prompt service. W. G. Lauver, Middletown, Pa.

GROOM'S high-grade yellow queens are bred for honey-getting, gentle, yellow bees. Best queens with best service. Willie Groom, Gashland, Mo.

MOUNTAIN Gray Caucasian queens. We are booking orders for April and May delivery, 1932. Write for prices. Lewis & Tillery Co., Rt. 6, Greenville, Ala.

HUNDREDS of 3-pound packages pure Italians, spring delivery. 1 lb. bees free with each package. 3-lb. packages go at last season's 2-lb. prices. Write for circular and low prices. The Gooch Apiaries, Farmersville, Texas.

FOR SALE—70 colonies bees in ten-frame standard hives. White sage and wild buckwheat range. Complete outfit. Write to W. R. Woodson, 4476 30th St., San Diego, Calif. (Certificate of inspection will be furnished at time of sale.)

GOLDEN Italian queens for 1932, the big bright hustling kind (the kind that get the honey); prices for April and May, 75c each, $60.00 per 100. Write for prices on package bees and white Giant Rabbits. E. F. Day, Honoraville, Ala.

FOUR 3-pound nuclei EQUAL (nearly) 1 COLONY in a cage. The price of 4 nuclei is? The price of a colony in a cage is $5.00. The express charge on a colony is a little less. BUT I'll sell you any kind of a package you want. Usual guarantees. P. O. Box 422, Houston, Tex. Dr. Stiles.

HELP WANTED

WANTED—Clean, industrious young man for the coming bee season. Must have some experience. Room and board furnished. Give full particulars first leters. B. B. Coggshall, Groton, N. Y

WANTED—Reliable young man of good health and habits for work in out-apiaries. Board and lodging provided. Give full particulars and reference. Archie L. Coggshall, R. R. 4, Ithaca, N. Y.

WANTED—Reliable young man to help with bees and extracted honey business for coming summer. Habits, qualifications, references and salary expected in first letter. Lavern Depew, Auburn, N. Y., Rt. 6.

WANTED—Two reliable young men with good habits and some experience for coming bee season. Give qualifications, references and wages expected in first letter. N. L. Stevens & Son, Venice Center, N. Y.

SITUATION WANTED

WANTED—Work with beekeeper, preferably in some southern state. Nine years' experience. Can furnish references. Glenn L. Hargitt, Danvers, Illinois.

WANTED—Work with beekeeper or queen-breeder. Seventeen years' experience, reasonable wages, efficient worker. Luis B. Hochstein, Newllano, Louisiana.

SITUATION wanted as helper with some reliable beekeeper. Age 20, height 6 ft., weight, 165 lbs.; with backlot experience. Will exchange references. Raymond Presnell, Banners Elk, N. C.

PARTNER WANTED

PARTNER WANTED—Spray poison has practically cleaned me out. I have equipment for 400 colonies and would like to secure partnership with beekeeper that could use additional equipment. If interested, write for complete information. L. L. Lieb, Greenacres, Washington.

MISCELLANEOUS

WANTED—400 colonies bees. Must be clean, strong and in 10-frame hives. Edward Klein, Gurnee, Ill.

WILL trade 160 acres valley land in Oregon and cash for bees in Central States. Box 17, Gleanings in Bee Culture, Medina, Ohio.

GROW Vitex trees for beauty and bees. 12 to 24 inch trees, 30 cents; 25 or more, at 25c; 24 to 36 inches, 50c; 25 or more at 40c. All prepaid. Seed, $1.50 per oz. Joe Stallsmith, Galena, Kans.

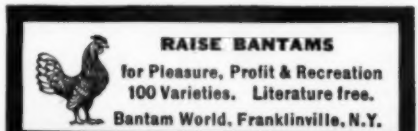
TOO LATE FOR CLASSIFICATION

TUPELO HONEY—The kind that will neither granulate nor ferment, 6½c f. o.b. R. R. Davis, Wewahitchka, Fla.

WHITE clover comb and extracted honey. Satisfaction guaranteed. Prices reasonable. Ray Mittower, West Lodi, Ohio.

NO. 1 clover comb wrapped, $3.50 case; not wrapped, amber, $3.00. Extracted in 60's, clover, 6½c; amber, 5½c. Buckwheat in 60's and 160-lb. kegs, 6c. H. B. Gable, Romulus, N. Y.

PACKAGE BEES, NUCLEUS AND QUEENS at money-saving prices. We ship by parcel post or express. Quality and service guaranteed. Harrison Apiaries, Route No. 1, Honoraville, Ala.



INTERNATIONAL CONGRESS

(Continued from page 98.)

men coming to this side at this time, who would enjoy visiting us as much as we would surely enjoy a visit from them, I shall get in touch with them if you will advise me their names and addresses."

American beekeepers who can attend the Congress will be well repaid for their effort. The opportunity to hear and to meet the world's outstanding authorities on apiculture is in itself well worth the cost of the trip. Visits are also being planned to some of the noted apicultural research laboratories, and to the renowned and historical places of interest.

The fact that the Congress will be held in Paris need not deter anyone from attending as a corps of competent interpreters will be provided for those who do not speak the foreign languages. This is an unprecedented opportunity to hear the world's outstanding apicultural authorities, to meet and become acquainted with them and to visit their research laboratories, in addition to traveling in Europe under the most auspicious circumstances.

In view of the fact that the International Entomological Congress will be held in Paris at the same time special rates will be arranged for groups both in crossing and for the special trips in Europe. Those who expect to attend should let their plans be known. It is suggested that some organization, such as the American Honey Producers' League, act as headquarters for the American contingent. —Jas. I. Hambleton, Washington, D. C.

TOLD BY THE JAY.

(Continued from page 105.)

it works something like the grease gun to our flivver. You can squirt it on your hot biscuits or cakes, and perchance you could squizzle a little into your month, but this would undoubtedly be considered bad form in the more exclusive circles. I think that one not so bad.

Now you can also buy canned mush. You cut out the top of the can, dump out the roll of mush, and slice it. The best thing about it is that it is made of the whole corn and has the good old fashioned taste. And at the bottom of the can it says, "A treat fried served with syrup or honey." It is named Betty Brown. What next, I wonder.

HONEY MARKETS

(Continued from page 69.)

ported from abroad. Honey prices show little change except where holders of honey are anxious to dispose of their remaining lots early and make price concessions for this reason. Comb honey is scarce but demand is primarily for comb that is wrapped and graded.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good good dstanding.)

Alice Burrows, Howard Grimble, F. W. Lesser, F. C. Stahelin & Co., Roy C. Stoller, Roscoe F. Wixson, Uriah Apiaries, Bees & Honey.

HAVE YOU SEEN THE NEW

Poultry, Garden and Home

magazine? Readers say it's the best—the most interesting magazine in its field. You'll say so, too, or we'll gladly refund your money. We'll send you a six months' trial subscription for just 25c. Stamps or coin. Address

POULTRY, GARDEN AND HOME,
Dayton, Ohio.

Note—If you have some spare time you'd like to turn into cash, write us for our special Representative's offer.

Roy's Special

High quality golden and three-banded Italian queens and bees are now ready to book. Price as follows: Special Orchard package or early-builder, a 2-frame nucleus, 3 additional pounds bees with a select young queen introduced, $3.50 each, any number. 2-lb. pkg. with a select young queen, 1 to 5 pkgs., $2.25 each; 6 or more, $2.00. 3-lb. pkgs. with a select young queen, $2.75 each, any number. 4-lb. pkgs. with a select young queen, $3.50 each, any number.

2 and 3 frame nucleus with select young queen, same price as pound pkgs. All bees are shipped on standard Hoffman frame of brood and honey. Prompt and efficient service and safe arrival guaranteed. A health certificate with each shipment. All loss will be replaced at once with bees or money, with bad-order report signed by express agent. Also ship combless pkgs on sugar syrup, same price as comb pkgs. 10% down books order, balance 10 days before shipment. Shipping season April 1. Address—

Willie Roy

Hessmer Louisiana

Caucasians

have all the good traits of Italians plus unbelievable gentleness, longer tongues, more prolific and more dependable workers. Imported breeders from the Terek, Caucasus. Ask for free paper of full description.

Carniolans

Best of winterers, rapid building up during spring, very gentle, very prolific at all times and most excellent workers. My own and Jan Strgar imported strain. Twenty-sixth year with them. Ask for free paper. Queens, 2-lb. packages and 8-fr. colonies of both races in season.

Albert G. Hann, Glen Gardner, N. J.

BEES - QUEENS

SERVICE

Our free circular tells how they will save you money.

CITRONELLE BEE CO.

Citronelle, Alabama

OLDEST **POULTRY PAPER** BEST **12** BIG ISSUES **25c**

Paste or pin this ad on a letter with your name and address and mail it to us with 25c., (stamps or coin) for the next 12 issues. **American Poultry Journal**
698 So. Clark Street Chicago, Illinois

BIG LEGHORN CHICKS

"Kerlin-Quality"—World's Great Money Makers—Trapnested breeders. Contest winners. Healthy—Mountain bred. **Low 1932 Prices. Big discount** on early orders. **Free feed** with chick order. Valuable 40 page Poultry Book free.
Kerlin's Poultry Farm, 218 Walnut Road, Centre Hall, Pa.

PATENTS Pat. Counsel of The A. I. Root Co. Practice in Pat. Off. & Court.

CHAS. J. WILLIAMSON

MacLachlan Bldg. Washington, D. C.

THREE-BAND ITALIAN QUEENS AND PACKAGE BEES

One to ten, 2-lb. pkgs., $2.50 each; ten to 25, $2.25 each; 25 up, $2.00 each. 3-lb. pkgs., 50c more each. Queens included. Extra queens, 60c each. Satisfaction assured.

D. C. JACKSON, FUNSTON, GA.

RED RIVER VALLEY APIARIES

We are now booking orders for 1932 delivery. We have the stock, equipment and experience and can give you prompt service. Our queens and bees are as good as money can buy. Have never had one complaint. Satisfied customers in every northern state and every province in Canada. There is a reason. Write for circular and prices.

J. G. BRUNSON, CHICOTA, TEXAS

EDWARDS

METAL SHINGLES AND ROOFING

LOOK BETTER
LAST LONGER
COST LESS

Fire, wind and lightning proof. Rust-resisting copper bearing steel. Fully guaranteed. Send roof measurements. Get our prices and samples. We pay the freight. Write for Catalog No. 183.

THE EDWARDS MANUFACTURING CO.
233-283 Butler St., Cincinnati, O.

Horse-High Bull-Strong
PIG TIGHT FENCE

34 CENTS A ROD

Horse-High, Chicken-Tight—**23** cts. a rod
Hog-High, Pig-Tight Fence—**14** cts. a rod
Fence for every purpose **direct to you** at manufacturer's lowest wholesale prices. Our **Encyclopedia of Fence** is free. A good time to economize. Send for it today!
KITSELMAN BROS. Box21 **Muncie, Ind.**

Bright Italian Package Bees & Queens

Get our Bright Italian Bees with "Diamond" Queens. Drones excluded. Hard-time prices. Efficient service. We fill orders for all size packages including orchard packages.

Canadian buyers may write us in French. We invite all package bee buyers to send for their copy of our descriptive circular and price list. No obligations.

Garon Bee Company, Donaldsonville, Louisiana

Berry's RELIABLE BEES AND SERVICE

OUR PRICES ARE RIGHT
PACKAGE BEES QUEEN BEES

Thirty-eight Years of Selection.
After 38 years of careful breeding and selection we have a strain of pure Italian bees that are unsurpassed for disease resistance and honey production. Write for our 1932 circular price list. It is ready and our prices are right. Thousands of full colonies and nuclei now await the harvest of bees and queens.

M. C. Berry & Co.
Box 697, MONTGOMERY, ALA.

Bright Italian Bees and Queens

Our queens are bred from large, gentle, golden Italian stock, as good as the best. They are raised scientifically and with greatest care. Consequently our customers never complain of supersedure—the thing that costs package buyers so much.

Queens are caught, packages filled and shipped the same day from New Orleans direct. Our cage is light. Satisfied customers in 33 states praise gentleness, prolificness, honey-gathering qualities and our business methods. Write for price list and testimonials.

Stevenson's Apiaries, Westwego, La.

Package Bees for 1932

Quality Bred Italian Bees and Queens will not fail you. Never before were we in better position to offer you a greater saving on your early orders than now. Our beekeeping experience dates back beyond 1908 and our successful career is based on our ability to render safe and satisfactory service to our customers. You, too, will be pleased with the quality of our bees, price and service. Let us quote you on any number of packages for delivery when you want them. Shipping starts around April 1st.

Lewis Beeware and Dadant's Foundation at Catalog Prices.

York Bee Company
Jesup, Georgia

Get Running's Bees

And Get Honey—They Satisfy

PACKAGES and NUCLEI

The kind WE use in our extensive Michigan Apiaries, where WE produce honey by the carload.

ALL ITALIAN STOCK

Service guaranteed. Stock bred for honey-getting and gentleness. PRICES RIGHT. Let us name you prices on any quantity.

DAVID RUNNING, Filion, Mich.
or Sumterville, Ala.

Bees Cheap; Not Cheap Bees

Never before have the best quality bees and queens sold at such low prices. Now is the time to make increase. Take advantage of present conditions and make a profit in 1932. Write for circular and price list.

J. M. CUTTS & SONS
Rt. No. 1, MONTGOMERY, ALA.

DON'T BLAME US

If you pay too much for Bees and Queens. Our prices are right. 100% satisfaction guaranteed.
Price list ready.

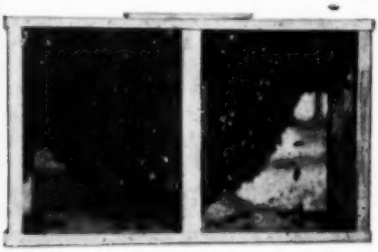
MERRILL BEE CO., BUCKATUNNA, MISS.

We've Produced Package Bees & Queens Since 1912. We Are Ready to Supply You in 1932

FROM QUEENS TO CAGES YOU WILL FIND THEM GOOD.

Young pure three-banded Italians from colonies run especially for the production of young bees, and select 1932 laying queens from gentle honey-producing stock fresh caged and placed in packages just before they are shipped. It makes a difference.

SAFE ARRIVAL AND PERFECT SATISFACTION GUARANTEED.
INSTALL THEM EARLY FOR MAXIMUM RESULTS.



With queen.	2 lbs.	3 lbs.
1 to 5 pkgs...	$2.75 ea.	$3.50 ea.
6 to 15 pkgs..	2.50 ea.	3.25 ea.
16 to 50 pkgs.	2.40 ea.	3.15 ea.
100 pkgs.....	2.25 ea.	3.00 ea.

For larger packages, add 75c a lb. Queenless packages, 75c each less. Shipping season starts April 5th.

Select young laying queens, 85c each; 6 to 14, 80c each; 15 or more, 75c each.

ORDER NOW AND LET US GET EVERYTHING ARRANGED BEFORE THE BUSY SEASON. NO DEPOSIT REQUIRED.

W. D. ACHORD, FITZPATRICK, ALABAMA

YOU WILL NEED

Queens

1. To replace failing queens.
2. To requeen queenless colonies.
3. To go with package bees.

Package Bees

1. To start new colonies of bees.
2. To strengthen weak colonies.
3. To replace winter losses of bees.

Write for our free booklet, "Combless Package Bees," that tells how to get the most out of packages and queens. Write also for our prices. Service, satisfaction and quality guaranteed.

THE A. I. ROOT COMPANY, MEDINA, OHIO

"I Didn't Get Much Honey But Here's My Check"

A. L. Moberg, Brookings, S .D.

"Here Is My Check

for $4.56 for the Institute. I didn't get much honey this year as the season was too dry. About three tons of comb honey, or near that. Not enough beekeepers are getting behind the Institute. Several hundred could and should support it, right from this state, and I wonder **what is the matter with them?"**

Will You Help Decide the Future of the Institute?

There is now no question about the soundness and the effectiveness of the way in which American Honey Institute gets behind your honey. Letters from beekeepers, associations, honey distributors, and honey users, from practically every state, prove this value.

But the work can not go on without just the kind of help Mr. Moberg gives. The time has come to decide the future of the Institute. **It will be decided** at the annual meeting of American Honey Institute at Columbus, Ohio, January 25. If you expect the Institute to continue to work for you, make good use of this coupon now so the directors will say—**go ahead.**

Basis of Support---Honey or Money

Honey—equal to one-half of one per cent of your crop.

Money—$1.00 per ton—either way, take your choice, but use the coupon now. (Send honey to any of list of receivers on page 776, December, 1931, issue.)

American Honey Institute, 225 Wimmer Bldg., Indianapolis, Indiana.

I pledge my support to the work of the American Honey Institute for 1932.

Enclosed is my check for.....herewith.

I have sent.....pounds of honey to.....
(Name of receiver.)
..... who will send value in money to you.

Name..... Address.....

(Mail to American Honey Institute, 225 Wimmer Bldg., Indianapolis, Indiana.)

(This space donated to the American Honey Institute by Gleanings in Bee Culture, Medina, Ohio.)

AGAIN WE OFFER

SMITH'S

Superior Bees and Queens

AT BARGAIN PRICES

BACKED by fourteen years of experience, a guarantee of satisfaction and our low prices make them a real bargain. Let us know your wants and we will give you prices that will surprise you. Write soon and you will not be disappointed.

N. B. Smith & Company
CALHOUN, ALABAMA

Satisfaction

That's what you get when you buy **L. L. FOREHAND'S BEES AND QUEENS.** The first thing you notice on arrival is a full weight package of pure Italian bees with fine large yellow queens. After installing the packages you find the bees to be very quiet and gentle, which makes easy and fast handling.

When the honey flow opens you will find them to be the best workers you ever owned with very little desire to swarm and highly resistant to diseases.

Every package will have 25% overweight in bees when packed. We have perfected a package that will eliminate every ounce of surplus weight, which will mean a great saving in transportation charges.

We guarantee every package and queen to give perfect satisfaction or we will replace free of cost or refund your money with all transportation charges you have paid.

Write for prices. No order too large and none too small to receive our careful and prompt attention.

L. L. Forehand Apiaries
JESUP, GEORGIA.

Package Bees

Nuclei & Queens

For April and May

✣

Better Bees, Queens
and better prices.
Let us quote you.

✣

Crowville Apiaries
Winnsboro · · Louisiana

GASPARD'S

High Quality Golden and Three-Banded Italian Queens and Packages

For the season of 1932 at the following prices: Special Orchard packages or early-builders, composed of a 3-frame nucleus, 3 additional pounds of bees, with a select young queen introduced, for $3.75 each, any number. 2-lb. packages with select young queen, one to nine, $2.25 each; ten or more, $2.00 each. 3-lb. packages with select young queen, one to nine, $3.00 each; ten or more, $2.75 each. 4-lb. packages with select young queen, one to nine, $3.75 each; ten or more, $3.50 each. 2-frame nucleus with select young queen, one to nine, $2.25 each; ten or more, $2.00 each. 3-frame nucleus with select young queen, one to nine, $3.00 each; ten or more, $2.75 each.

All bees are shipped on Standard Hoffman frame of brood and honey, prompt and efficient service, safe arrival guaranteed, and a health certificate with each shipment. All loss will be immediately replaced upon receipt of bad-order report signed by express agent. Shipping season starts April 1st. Orders booked with 10% down, balance at shipping time.

Also ship combless packages if wanted, at same price as comb packages.

Address—

J. L. Gaspard, Hessmer, Louisiana

Bees and Queens Galore

We are situated on main line of railway that connects with all the main lines of the North and West, insuring your bees to reach you on time, and in nice shape.

We do not have a single dissatisfied customer that we know of.

Will have several thousand pounds of bees. Also several thousand queens for April and May delivery.

Plenty of efficient help to get them to you on time.

PRICES IN U. S. A.

2-lb. pkg with queen.....$2.25
3-lb. pkg. with queen..... 3.00
Queens .....60c each

Canadian shipment, 10% more than above prices.

SHAW & HOMAN
SHANNON MISSISSIPPI

Package Bees and Queens

Pure Three-banded Italians

Do not feel discouraged because of the depression but go right after a crop of honey this year and you will be the one to succeed. The fellow who slows down and does nothing will be the one to suffer. If you will purchase my quality bees and queens receiving 100% service at all times, you will have made the most important step in making 1932 a successful year in beekeeping. My high grade stock will help you overcome the cheap price of honey as they are honey gatherers and produce large yields per colony.

Don't wait. Write for circular price list today.

Hayneville Apiary Co.
W. E. Harrell, Prop.
Hayneville, Alabama

JENSEN'S

Package Bees and Queens

Orders booked now. Shipment when you want them per agreement. Indications point to increased demand, and prices have reached bed-rock, so there can be nothing gained by waiting. It helps the shipper to know in advance something concerning the volume of business he must prepare for.

Selective breeding through the years has had marked influence on our original stock, and this year will be extended to "Selective Breeding to Meet Northern Conditions." Breeding queens, as well as drone mothers, will be selected from the best in our Nebraska apiaries.

Our shipping cages, and method of packing for shipment the past two years has met with much favorable comment.

A postal brings our descriptive folder and price list.

Jensen's Apiaries
CRAWFORD, MISSISSIPPI

Honest Quality Service

Reduced Prices on Package Bees

If you are in the market for Package Bees, write us. We can save you money.

PURE ITALIANS

Package Bees Express Collect	Young Queens	
	2-lb.	3-lb.
1-10	$2.25	$2.90
10-50	2.00	2.65
50 or more	1.75	2.40

Southland Apiaries
NATCHEZ MISSISSIPPI

PACKAGE BEES

Lower Prices . . Better Service . . Less Express . . Better Queen Protection . . A Trip to the Sunny South . .

If you or your neighbors need as many as 200 or more packages you can come for them for less than the express would be unless the distance is too great, but a load of 500 will pay most any distance. Write us what you and your neighbors need.

Orders booked without deposit, guaranteed to be free of disease and to arrive safely and to be to your entire satisfaction.

	1 to 10.	10-25.
2-lb. - - -	$2.50	$2.25
3-lb. - - -	3.15	2.90

For larger lots write for prices.

The Stover Apiaries

Tibbee Station, Miss.

Telegraph office, Mayhew, Miss. Shipping points: Mayhew, Miss., Natchez, Miss., Helena, Ga.